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Highlights of 1933

WE pause here again to summarize our activities, recapitulate gains, and point to recent trends in the movement for conservation of vision

THE National Society for the Prevention of Blindness entered its second quarter century in 1933. The span of twenty-five years, of course, permitted more spectacular comparisons than the span of a single year. The first quarter of a century has seen:

A 75 per cent reduction in the number of cases of blindness from babies' sore eyes among children entering schools for the blind.

An increase in the number of sight-saving classes, since their establishment in 1913, to 430 in 1933.

A marked increase in the amount of vision testing among school children.

The development of a method for testing the vision of children as young as two years.

The adoption by safety engineers of methods for preventing eye accidents in industry.

A remarkable improvement in lighting, and the invention of a device for measuring light.

Inasmuch as the Society recently presented an historical panorama of its work, this year we sketch only the highlights, stressing the newer aspects as we enter the second quarter century.

CWA Projects Provide Sight Conservation Opportunity

The Civil Works Administration has engaged the services of additional school nurses and personnel who are using eye charts as well as general literature of the Society. Thus far, the Society has definite knowledge of CWA participation in eyesight conserva-

tion activities in Louisiana, Missouri, Nevada, New Jersey, New Mexico and North Carolina. For instance, in Nevada, 25 public health nurses were provided through these auspices; as no funds were available for procuring educational material, the Society furnished the necessary publications for their program.

Eye Hygiene in the Schools

The tendency to incorporate eye health in programs of general health has increased steadily among state health departments and departments of education throughout the United States. These were circularized with a mimeographed outline of "Suggestions for a Program of Eye Health in a School System"; though a comparatively short time has elapsed, a number of states now use this outline as a guide in preparing their health programs. The Society co-operated in the field with nursing, health and educational groups in developing a more adequate service of sight conservation for their communities. For this purpose, Iowa, Nebraska, South Dakota, Wyoming, Nevada, California, Mississippi and North Carolina were visited during the year.

For the first time a staff member is now engaged solely in working with teacher training institutions, to provide adequate information on eye care and hygiene, and to guide classroom teachers toward participation in the school program of sight conservation. With this in view, the Society's representative spends some time in a teachers college or a normal school, studying with the faculty the possibilities for integrating an eye health program into the existing curricula. In demonstrating proper lighting before these groups, she finds a recently perfected portable light meter of great assistance. It is startling to a school principal or school superintendent to find, when this little instrument is placed on his desk, that he is working in three foot-candles of light, when the recommended minimum is ten, and to find that many students in his school suffer the same handicap.

Non-Shatterable Glass

Five states—New York, Pennsylvania, Michigan, Nebraska and Massachusetts—have made it mandatory for automobiles to be provided with non-shatterable glass as a means of safety. In

New York State, the influence of the Society was exerted to bring about passage of the bill and the Society is urging similar action in Iowa, where a bill is under consideration. Non-shatterable glass has also been perfected for use in spectacles; children who need to wear glasses may now enjoy play without hazard to the eyes.

Medical Consultant Services

The Society is very fortunate in having the voluntary services of an ophthalmologist on its Board of Directors to act as special consultant, in order to respond to numerous requests for advice and information of a medical nature.

A Girl Scout Manual in Large Type

Among the sight-saving class pupils in the United States are many who are eligible to be Girl Scouts. The Society and Girl Scouts, Inc., are co-operating in making available for this group the Girl Scout handbook in large type; this will be ready for distribution early in 1934 by the National Equipment Service, Girl Scouts, Inc., 570 Lexington Ave., New York City.

Babies' Sore Eyes

After a bitter fight and defeat which attracted nation-wide attention in 1932, Illinois has passed a law requiring the use of prophylactic drops in the eyes of all newborn babies; Washington, D. C., is considering a revision of its regulations on this subject.

Syphilis as a Cause of Blindness

The campaign against syphilis as a cause of blindness received impetus from resolutions promising support which were passed by the following sections of the American Medical Association: Ophthalmology; Dermatology and Syphilology; Nervous and Mental Diseases; Preventive and Industrial Medicine and Public Health; Pediatrics; and Obstetrics, Gynecology and Abdominal Surgery. Following the passage of these resolutions, the American Social Hygiene Association and the Society adopted as part of their respective programs the active promotion of education for prenatal care of syphilitic mothers. Emphasis is being placed on the need of a blood test for every expectant mother. The American

Medical Association is co-operating by furnishing facilities for enlisting the active interest of the entire medical profession.

Sight-Saving Classes

Despite the fact that special classes were reduced in number or discontinued altogether in many fields of education during the depression, 17 new sight-saving classes were established for school children with seriously defective vision. Through the efforts of local committees and the Board of Education, three sight-saving classes are to be established in Washington, D. C., early in 1934.

Training courses for sight-saving class teachers were given in the summer of 1933 at the University of Chicago, State Teachers College at Buffalo, and Teachers College, Columbia University.

Study of Causes of Blindness

A trial study of the causes of blindness among children in schools for the blind discloses the striking fact that many of these children might gain sight through adequate medical or surgical treatment; measures are being taken to bring them into the sighted world. This analysis of the causes of blindness among children is an undertaking of the Committee on Statistics of the Blind, sponsored jointly by the American Foundation for the Blind and the Society. Examining ophthalmologists serving schools for the blind in several states are co-operating. The first of a series of reports will be published early in 1934.

Medical Social Eye Work

Medical social eye work is a growing field for prevention of blindness. Since the first training course was given in 1931, ten trained medical social eye workers have become actively engaged in some phase of sight conservation—one as far away as Honolulu, Hawaii. At the present time, a course is being given at Washington University Clinics and Allied Hospitals, St. Louis, Mo.

Cross-Eyes

Orthoptic training as a part of the treatment for cross-eyes is gaining more attention. Ten clinics have already been established in six communities. The Committee on Optics and Visual Physi-

ology of the American Medical Association requested the Society to name a committee to study the possibilities of this type of training; this committee is now engaged in getting the consensus of leading ophthalmologists on the subject.

Summary

The Society finds that greater use than ever before is being made of its educational material. The necessity for local organizations to curtail expenses has forced them to call upon the Society for additional amounts of literature; exhibits; slides and films. In fact, it has been found advisable, in some instances, to extend the use of the film, "Preventing Blindness and Saving Sight," for an indefinite period. The SIGHT-SAVING REVIEW continues to serve as a field representative throughout the United States and abroad. For more specific and less formal purposes, the *Sight-Saving Class Exchange* serves the sight-saving class teachers and the medical social service *Bulletin* is circulated to medical social workers. Frequent comment on the Society's work, in newspapers, magazines, medical publications and trade journals, is suggestive of general interest in prevention of blindness activities.

In presenting its highlights for 1933, the Society wishes to emphasize its policy of working with all authentic agencies, for the purposes of economy as well as accomplishment. It acknowledges with gratitude the continued interest of its participants, both those contributing money and those actively engaged in the work.

Vocational Guidance for Children with Defective Vision*

Helen J. Coffin

THE author urges that vocational decisions be postponed as long as possible for children with defective vision; but sight-saving class boys and girls need "educational guidance" to avoid needless courses which may cause a waste of eye energy

Introduction

IT seems like bringing coals to Newcastle to come to Chicago to talk about vocational guidance, which has been so highly developed in the public school system here, and for which it is so well known; but Cleveland has been somewhat of a pioneer in vocational guidance as applied in the special field of sight saving. Mr. Irwin, now director of the American Foundation for the Blind, is responsible in a large measure for this, since he considered it of great importance and engaged a special vocational counselor for sight-saving and Braille classes in 1917, only four years after the first sight-saving class was organized in Cleveland.

In the past sixteen years we have tried to keep abreast of the guidance movement as it has developed; continuously to make adaptations of the general scheme of guidance to the sight-saving class pupils' needs (and adaptations are always necessary with a group which deviates from normal pupils in so important a respect as eyesight); and to make the adjustments in our set-up which have been demanded by current conditions and the uncertainty of the future in this rapidly changing world of ours.

Perhaps I shall express some opinions with which you will not agree, and I may not myself in another year if situations change

* Presented at a meeting of Illinois Sight-Saving Class Teachers, Chicago, Illinois, December 11, 1933.

and facts alter the case; but what I have to offer comes from an initial training in the general field of vocational guidance and much subsequent experience in educational and vocational guidance in the sight-saving field.

Since the guidance movement first started there have been many improvements over the arbitrary manner in which we went about to determine a person's future career, and to say with more or less finality, "Now you must train for and do this or that." There is more attention paid to educational and social guidance, and less determining of the specific vocation for a child before the time of actual placement. We are approaching the whole problem from the learner's point of view. We are developing in boys and girls some responsibility for the wise selection of their life careers by giving them opportunities to know what occupations there are in the world; to know how workers should be fitted by native or acquired abilities to do certain types of work; and to estimate how their own abilities may match the requirements for the kind of work they desire to do. In the junior high schools so-called vocational courses are now considered really as try-out courses, or pre-vocational courses. Specific trade and technical training are generally included only in the curricula of special schools, or senior high schools. We find that specific vocational training is no more profitable for lower grade sight-saving class pupils than it has been found profitable for sighted pupils. I will touch upon vocational training briefly a little later.

Guidance, however, is being emphasized one way or another by all who are concerned in the educational programs of the youth of today; but vocational guidance and placement are an exceedingly baffling problem and especially difficult for the sight-saving workers in times like the present.

I should like to discuss seven or eight points with you, some very briefly, others more fully, as time will permit.

What is Guidance?

You have asked me to speak on vocational guidance, but I cannot divorce vocational guidance from educational guidance. The term "vocational" connotes too narrow a meaning and allows preparation for only a specific job.

I would define guidance as the assistance which is given a pupil to help him to assimilate his school learning and his experience to the end that he may develop an understanding of his capacities; that he may become adjusted to his social and vocational environment; and that he may be better able continuously to make wise decisions in his preparation for and choice of a life career.

The adaptation of a guidance program for sight-saving class boys and girls will be determined by the special problem which is presented by the kinds of boys and girls in sight-saving classes. In the first place, children are placed in the classes because of their individual eye conditions, and many different conditions are represented in one class enrollment. In addition, sight-saving class pupils vary in many other individual traits and aptitudes. The sight-saving class teacher meets a real challenge to her skill and technique in that she has to deal with dull, emotionally unstable, and otherwise physically handicapped children, as well as bright, perfectly balanced, and otherwise physically well children—all in her class because they have certain visual defects.

Sight-saving classes present a cross section of the school enrollment, but the pupils in them cannot be classed for guidance, or any other school work, just because they may have a similar eye defect. The child who is to leave school at 15 or 16 presents one kind of problem in guidance. The high I. Q. child presents another kind of problem. This brings us to another point—the need of guidance for sight-saving class pupils.

All of these pupils need guidance just as much, but no more than any other school pupil. The emphasis is upon the kind of guidance. The average lay person seems to think that each and every sight-saving class boy or girl can be immediately pigeon-holed as far as his life career is concerned by receiving vocational guidance. This can no more be done with these boys and girls than with any others.

My early experience showed me that vocational guidance could not be separated from educational and social guidance and that vocational decisions should be postponed as long as possible. Teachers and counselors cannot determine for a child in the grades, and he cannot decide for himself, at that age, that some particular job will become his life work, especially as job opportunities are

today. We may predict that, according to statistics, a certain number of boys and girls will be found as men and women in certain types of work, but this is generalizing and does not mean that John and Joan will be placed in that work.

Educational Guidance First Consideration

Our first step, therefore, is to emphasize educational guidance. I consider this to be the kind of guidance which sight-saving class boys and girls do need more than sighted pupils, since irreparable damage may be done by the offhand selection of school courses, the learning of which may constitute a great waste of eye energy.

May there not also be a similar waste if the child who leaves school at the minimum age makes the wrong choice of a job? Any child who leaves school at the minimum age is too immature and has too little strength to start out on skilled work. The sight-saving class boy or girl of slow mentality will make just as much of the type of work offered to juveniles as other pupils, given a like opportunity, with special consideration for the eye work required. For the child who can go on in school, actual placement of the pupil whom the teacher may guide is a long way off, and it is through educational guidance that the child learns to be better able continuously to make his own wise decisions concerning his work when the time arrives to leave school, or university.

By whom should guidance be given to sight-saving class pupils? With so many angles and so many types of guidance I want to consider for a moment the question of how and by whom guidance should be offered to the sight-saving class pupil. Many high schools and junior high schools now offer courses in guidance and in vocational information. Some schools offer courses called Personal Regimen. While these latter may not be classed as guidance courses, yet they offer a valuable addition to vocational guidance in that they deal with appearance, office manner, personality, development, etc. Every available course open to the regular class pupil in the school in which a sight-saving class is located may well be considered for the sight-saving class boys and girls. In the *Sight-Saving Class Exchange*, No. 38, November, 1931, Miss Anne Goehring has described the vocational guidance program for a Dayton junior high school, and its application to the sight-saving

class. Since the preparation and the reading for regular class work are presumably done with the sight-saving class teacher, she will have an opportunity to take up the analysis of the occupations studied from the point of view of eyesight requirements.

Vocational Counselor Desirable

In addition to guidance courses, it is desirable that a special vocational counselor be assigned for the sight-saving class pupils. It is only through many contacts with boys and girls and men and women with defective eyesight that the counselor can become thoroughly prepared. In addition to training and experience in this and the general field, the special counselor should have an intimate knowledge of all eye conditions and sight conservation methods.

I realize that at the present time most schools find it impossible to employ a special vocational counselor, and this duty is another of the many which must devolve upon the sight-saving class teacher. Even if she cannot be entirely familiar with the program of guidance and the technique of the trained vocational counselor, she does know the individual pupils and their eye conditions, and can work in close co-operation with the ophthalmologists. With all due respect to the ophthalmologists, they do not always know enough about the pupils' aptitudes, the school curriculum, or occupations, in general, to give the very best educational and vocational advice; but the results of combining the knowledge of doctor and teacher in the advice to the pupil are fairly good, especially in educational guidance.

When a pupil nears the end of his school career, whether it is at the minimum age to leave school or after high school graduation, and the questions of vocational guidance and placement become imminent, here again only those persons familiar with the physiology and hygiene of the eye, and with the pupil's aptitudes and mental rating, should venture to assist the pupil in his choice of a specific line of work. I am emphasizing this for it seems to me that without guidance from the point of view of the ophthalmologist—the expert on the medical side—and the sight-saving class teacher and counselor—the expert on the school and vocational side—the child who has been carefully protected throughout his school career

may be misguided at a most critical time and subsequently waste time and energy needlessly.

Hints for Vocational Guidance

Sight-saving class teachers, facing the needs of their pupils for guidance, both educational and vocational, may be interested in some definite suggestions which have been found helpful to the sight-saving class teacher who is both educational and vocational counselor. Some of these points were talked over at one of our teachers' meetings in Ohio last spring. It is suggested that the following, if they could be put into the hands of teachers, would be valuable to them:

Lists of all occupations of former sight-saving class pupils, obtained by an annual follow-up survey.
An annotated bibliography on guidance and occupations.
A list of all opportunities for guidance, including courses in the junior and senior high schools, in your system.
The teacher should
  Co-operate with established bureaus of guidance, especially in order to keep in touch with the general field, local industrial and business conditions, and possible fields of employment.
  Co-operate with oculists.
In addition, the teacher should have available
  The pupils' P.L.R.'s, or I.Q.'s.
  Records of home conditions.
She should also be acquainted with her pupils' ambitions, and their social and personal limitations.

The teacher should try to keep her rating of her pupils objective rather than subjective. This is important, because a teacher may have a pupil over an unusually long period of years, as is customary in cities having but one or two classes, and she may mistake improvement for ability.

Now from the learner's point of view—how may your sight-saving class pupils learn guidance in a manner applicable to their specific needs? I think this can be done best where regular courses may be interpreted, with the help of the sight-saving class teacher, through a special eye hygiene course. This correlates well with assignments from regular class guidance courses. A course in eye hygiene, including sight conservation, may also constitute one of

the best means of teaching guidance to sight-saving class boys and girls. Through it they may learn what they may do safely at home; what games they may play, both outdoors and indoors; what kinds of jobs they may do in their after-school and summer hours. This gives rise to a discussion of future vocations.

We have been trying to develop a responsibility for the school and community program of sight conservation in our junior high school pupils. In this way the problem becomes impersonal at the same time that it is developing personal responsibility for sight conservation.

Opportunity to Learn from Others' Experiences

As it nears the time for a pupil to leave the sight-saving class, he should know some of the occupations in which former sight-saving class pupils with similar eye defects and abilities—and this is important—have succeeded. At all times due respect must be paid to the pupil's desires and ambitions. If these are contrary to his own best interests, much skill and tact are required to guide him toward other interests. Right here are the times when compromises may sometimes have to be made, and the teacher and counselor must not be too rigid or inflexible.

If a teacher has available both general lists of occupations and also lists of the specific occupations actually engaged in by former sight-saving class boys and girls, she may present these as positive suggestions in order to develop new interests in the boy, or girl, and to ween him from a fixed desire to take up something which is known to be an unsatisfactory career for one with his sight. I have mentioned previously that such lists would be of definite help to the sight-saving class teacher. These may also be referred to by pupils if some of the lists are put into large typewritten copy.

If you desire to be very specific and advise a boy or girl what work to apply for tomorrow, you will have to offer suggestions from those fields of work in the community which are today employing persons of a given sex, age, and ability. If you are merely suggesting a vocation for some subsequent date, consider very carefully the ability of the pupil and all the factors bearing upon his aptitudes and eye restrictions, and consider the permanency of the work along the lines of his ambition.

Everything in industry is so uncertain today that no one can make predictions concerning specific occupations for any of the youth now in school. When fine boys and girls, college men and women, trained professional men and women, as well as common laborers without education, have walked the streets for months without work, how can we plan with any assurance for the specific future jobs for any child now in school?

Guidance as a Part of Training for Life

However, these children must be prepared when opportunity does present itself. Therefore, I suggest that guidance for sight-saving class boys and girls direct them toward a rather general preparation for life. They should have as much school training as they are capable of, and the longer they can put off too narrow specialization the better.

Their training should emphasize the need for alertness, versatility, conservation of health, co-operation with fellow workers, and the ability to make the best of every situation and to seize new opportunities as they arise. If there is any special training, let it be training for occupations which are of a more or less permanent nature, such as work connected with the preparation and serving of foods; some business training leading to indoor or outdoor sales work. If a student is to go to college, majoring in sociology with a view to undertaking social work may be possible for some.

General lists of occupations and job classifications such as may be found in *Occupations—The Vocational Guidance Magazine*, offer good suggestions. For instance, a teacher may rarely have a student who would show a desire or inclination for religious work, but there are certainly some kinds of religious social work into which a person with limited vision might go. For a good many years we have tried to compile the results of questionnaires sent out to our former pupils. Such lists compiled in your local community should be very specifically helpful, both to teacher and pupil.

My final point concerns the development of the whole child since, after all, we must provide for the development of personality as well as the conservation of sight. What, then, are the rights of the sight-saving class pupils in the choice of elective studies and,

finally, in the selection of a career, whether they start out for a job, a position, a profession, or to be just a person about the house?

We have some oculists who are much interested in their own field of work and in the sight-saving classes; but they are also unusually interested in the development of the boy and girl. I quote from one when I say, "We want the child eye-careful, not eye-conscious."

Guidance for Myopes in Sight-Saving Classes

I do not know much about your sight-saving class population in Illinois. In our sight-saving classes in Cleveland we average annually about fifty per cent myopes. These pupils, on the whole, have a better average mentality than do the low vision pupils. At the present time we have four in major work classes. With reasonable care now, the oculists predict that these pupils may go through high school and probably college, if by college age there has been no serious increase in myopia. After this many of the restrictions now imposed in the use of the eyes will be removed and the young men and women may go on in a perfectly normal manner.

Except for knowledge of the physiology and hygiene of the eye, and some knowledge of lighting and the proper use of light, and the practice of methods of doing eye work which, through daily application in sight-saving classes, we expect will become matters of habit, these myopic pupils should be very normal members of any community. They should, therefore, have every opportunity to take courses in school suited to their particular aptitudes and their vocational ambitions. If the latter present a serious conflict between what is eye-safe and what is desired above all else, do we have a right to say "thou shalt not"? After all, we cannot make neurotics out of children to save their sight. We must be very cautious in the use of negatives lest a conflict be built up, and the child develop a sense of inferiority which as an adult he will not be able to overcome.

Oculists pretty much agree that danger of seriously impairing vision in cases of myopia comes before twenty-one. After that age the use of the eyes in a reasonable and sensible way may be quite safe. What myopic pupils can do, therefore, will be deter-

mined by factors other than those of eyesight. They may do many things which other persons of like mentality and ability do.

It is to be hoped that attendance in a sight-saving class, through school years, will have given them knowledge of how to do their work. Of course we cannot know whether or not many famous people who have had myopia would have been better off for sight-saving class methods. Theodore Roosevelt did not become blind, although he was known to be myopic. Others could be cited whose work has made the world better. I have no doubt that success may be an ultimate goal more to be chosen by some than sight. Certainly those persons who are making a great contribution have a right to make their own choice.

Guidance for Other Sight-Saving Class Pupils

I have been talking about fifty per cent of our enrollment. The other fifty per cent of the pupils in the sight-saving classes, who have low vision arising from a variety of causes, present an entirely different problem. Their choice of work is limited largely because of lack of visual acuity, not by the harm which may come from the use of their eyes. They are in more need of vocational training for some specific occupation than are myopes. There are some vocational training courses in the high schools which these pupils may take, and specialized training is desirable for many of them. In some selected cases of slow mentality this is especially needed.

A person with low vision is always at a disadvantage in working with his hands, and the boy or girl who must seek manual employment generally needs more training in order to acquire sufficient manual skill to compete with normally sighted men and women. From this group we are likely to find more recruits to the ranks of the dependent. In such cases it is perhaps justifiable for the counselor or the teacher to be more arbitrary in the courses of studies allowed, and more emphatic in insisting that a pupil not spend time and energy in preparing to be, let us say, a typist, since we know what experience has not yet taught the pupil, that practically every typing position requires transcribing from stenographic notes, or small type. A low vision pupil might see this, but the element of time required to see this, and the nervous fatigue attendant upon the effort, all make this an impossible field

of work in which to earn a living. On the other hand, there may be many children, even in this group, for whom a general course will prove the best means of developing their abilities.

And so, in conclusion, I want to stress the importance of considering each sight-saving class pupil individually. There are many possibilities of work for these boys and girls as well as some impossibilities. The answer to the question, "What can sight-saving class boys and girls do?" is, "A great variety of things depending upon their abilities, industry and personality." They need help and guidance toward making a wise choice and often, but not always, help in securing the actual placement.

Light and Vision *

Preston S. Millar

SCIENTIFIC experiments prove that ocular fatigue and nervous fatigue are greater under conditions of improper illumination. Here is an opportunity to learn about lighting from an expert on the subject

IT is difficult to disassociate light from vision. Light reveals; vision perceives. Where there is no light, there is no vision. Where there is no vision, light is of no avail. There is a mutuality in the problems of the oculist and the lighting specialist that cannot be escaped. I presume that the oculist can do his work more intelligently if he is acquainted with the fundamentals of lighting. And I am very sure the lighting specialist can do his work more effectively if he is acquainted with the characteristics of the eye to which the lighting must cater.

Adequacy of Illumination

First, of course, when thinking of light, is the importance of providing adequate illumination. That is so obvious that it ought not to have to be demonstrated. Yet, peculiarly, in practice it is neglected rather than observed. All over the land people are trying to do visual work with inadequate illumination.

It is probably a common observation that ample illumination makes it possible to read on an eye chart type of smaller size than can be read with somewhat less quantity of light. Similarly, one can perceive motion when there is ample light which escapes notice under lower levels of illumination.

The importance of adequacy of illumination is well established in lighting lore and is supported by experiments in several direc-

*Excerpts from an address presented at the Annual Meeting of the National Society for the Prevention of Blindness, New York, November 24, 1933.

tions. Laboratory investigations have demonstrated that ocular fatigue and nervous fatigue involved in the performance of a given visual task are greater under relatively low levels of illumination than they are when the illumination is adequate. In the industries it has been found repeatedly that when levels of illumination are increased, production of workers is increased and spoilage is diminished. In the lighting of city streets it is established that there is an inverse relationship between the number of traffic accidents and the amount of light provided in the streets at night. As the illumination of the streets increases, traffic accidents diminish. As the illumination of the streets is diminished, traffic accidents become more frequent. Engineers have investigated the economics of this matter with the conclusion that under ordinary circumstances a municipality would be justified economically in spending, say, three times as much money as is customary for street light in order to obtain more adequate illumination. Such additional expenditure would actually effect savings for the community and this is quite aside from all humanitarian aspects of the traffic accident problem.

As a first requisite in lighting which is simple and obvious but widely neglected, it must be set down that an adequate quantity of light must be provided if the illumination is to be satisfactory and visual requirements are to be met.

Glare Avoidance

Sufficient light, however, is not enough. It is necessary to avoid glare. That, again, is thought to be well understood by the public. Everybody thinks he understands what glare is and, of course, knows that he should avoid glare. But, again, in practice, this is an injunction that is flagrantly neglected. Glare is to be found to a degree that causes difficulty in reading and in other ocular occupations throughout the homes of our land.

Take any circumstances in which print can be read easily. If a bright light source is thrown into the field of view, it is impossible or difficult to read letters near the glaring source.

Another type of glare, which is more prevalent and not avoided usually, is specular glare due to reflection of some bright surface or light source from a glossy paper or other work surface. Specular

reflection from an observed surface handicaps vision and occasions ocular discomfort. In reading, very frequently this effect is encountered in a lesser degree where often it is not noticed. But the continued attempt to use the eyes under conditions of specular glare results in fatigue. Whether or not it results in ultimate injury to the eyes, oculists are better fitted to say than I am.

In any piece of visual work it is easy to determine whether or not from this standpoint of glare the reading conditions or working conditions are satisfactory. If through a mirror laid upon the piece of work one can see the reflection of a brilliant source of light or of a brightly lighted surface, there would result from the work surface some specular glare. The mirror test is especially practical in the home where children do studying. If they work at a desk, very often the light source is not properly located or their posture is not right or the light source is not properly diffused. A mirror laid upon the desk top, viewed from the ordinary position of the eyes, will quickly tell whether or not there is any source of glare which is causing disturbance through specular reflection from the page of a book. Once specular glare is identified it is easy to remedy. Changing the location of the light source may obviate the difficulty. The light may be diffused by interposing an opal glass or other diffusing screen. Or the position of the eyes may be changed so that one does not look in a critical direction toward a work surface.

For good results in lighting it is necessary that there be an ample amount of illumination and that there be absence of glare.

Color

When we turn to the field of color, there is opened out to examination a vast new region of great interest in which the characteristics of both light and vision are involved.

Every school child knows in mixing paints that blue-green (minus red), crimson or purple (minus green) and yellow (minus blue) are the primary pigment colors and by mixing these with white paint in suitable proportions a paint of any color can be obtained. He knows that yellow and blue-green pigments mixed will produce green. That, of course, is not an ocular phenomenon in any sense. Speaking in a very general way the blue-green

pigments absorb the reds, oranges and yellows. The yellow pigments absorb the blues and violets. The only rays that are not absorbed by the two kinds of pigments are greens. The green light is reflected. So we say blue and yellow pigments make green.

When it comes, however, to radiant energy which is of those wave lengths that we identify with colors in the visible spectrum, a very different set of primaries is involved. Red, green and blue are the light primaries. Discs of red, green and blue light if caused to overlap produce an approximation of white light. Another way of mixing colors to obtain white is to present the colors in rapid succession to the eye. The eye receives the impression and through persistence of the sensation mixes them to produce a single color impression. If we could get colored papers or fabrics which were substantially pure color, we could with a color wheel show a mixture which would appear quite white. However, available pigmentary colors are by no means pure. Consequently their mixture produces gray instead of white.

The two illustrations, both well known, of radiant energy corresponding with red, green and blue and of the color wheel, are involved with ocular effects. The eye is revealed as a synthesizing instrument presenting one final sensation from the mixture of three hues.

There is a more obscure effect which may be illustrated with the aid of a Benham disk. When the disk is motionless it is seen that half of it is black and the other half is white with some black circular lines drawn on the white portion. When the disk is revolved at an adequate speed it assumes a uniform appearance in so far as the two halves are concerned. Due to the persistence of sensations previously referred to, it appears as a gray disk instead of being half black and half white. Where the black lines on the white field form arcs of circles, revolution produces an appearance as of continuous rings. When the rate of revolution is at a critical slow speed, these rings appear colored variously as red, tan, green and blue. There are no such colors present in the disc, so that the appearance of color is an ocular effect. In this case, seeing is not believing. The reader is referred to books on optics for theories as to the explanation of these effects.

Color Vision

The spectrum of sunlight as seen, for example, in the rainbow is well known. With a prism or a diffraction grating, a beam of white light can be dispersed into its spectral colors for observation. Any red object displayed in the red band of the spectrum, of course, looks red. Placed in the green part of the spectrum it appears black because it would fail to reflect much of the green light. A green object displayed in the green part of the spectrum would

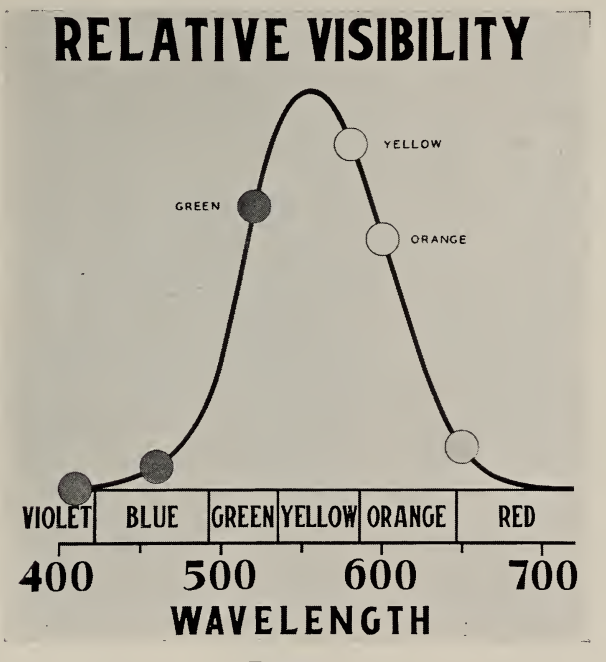


FIGURE 1

be green but in the red part of the spectrum it would look black. A white object displayed in any part of the spectrum would take on the hue of the spectrum itself because a white surface reflects light of all colors. The normal human eye perceives these colors and we take it as a matter of course, rarely thinking about the fact that the eye is being stimulated by radiant energy of various wave lengths and that it is incapable of appreciating the various hues equally well. For radiation of uniform strength throughout

the range of the visible spectrum the intensity of the sensation of light varies about as illustrated in the chart of Fig. 1. The eye must receive many times more radiant energy of wave lengths near the ends of the spectrum, i. e., in the blues and violets and in the reds, than it must receive in the greens and yellows near the middle of the spectrum, in order to experience an equal light sensation. The chart displays what is known as a visibility curve which indicates the relative sensitiveness of the eye to light of different colors as indicated at various parts of the curve.

Reverting to consideration of the spectrum, sunlight and light from the usually employed tungsten filament lamps produce continuous spectra in which the colors merge gradually from one to another without interruption of continuity. There are other light sources, however, which produce light having a banded spectrum. The energy from such sources is concentrated at certain wave lengths. Thus the mercury vapor lamp radiates principally at isolated points in the green, yellow and deep blue. The sodium lamp, newest of artificial illuminants, concentrates its radiation in one band of yellow light.

Much as red, green and blue light may be mixed to produce white, so with commercial illuminants manufacturers may combine light sources of distinctive colors in such a way as to produce synthetic light of a different quality. In such practice, gaseous discharge tubes of the types used in signs are commonly utilized. These produce banded spectra and may be combined to produce light which appears to the eye to be white but which is not a true white light suitable, for example, for color matching purposes. Such a combination can be obtained by the use of neon to add red to the mercury light, and thus produce a light which seems white to the eye, which is not an analytical instrument but which discloses on instrumental analysis large gaps in the spectrum which may distort certain colors.

It is well known that the color appearance of objects depends largely upon the color of the light by which they are illuminated. Not infrequently purchases of colored fabrics have proved unsatisfactory because they were purchased under light of a hue different from that under which they were used. A more radical difference in color of light than customarily is encountered when dealing with

FABRIC COLOR UNDER DIFFERENT QUALITIES OF LIGHT

MERCURY | MERCURY PLUS NEON | TUNGSTEN | SODIUM

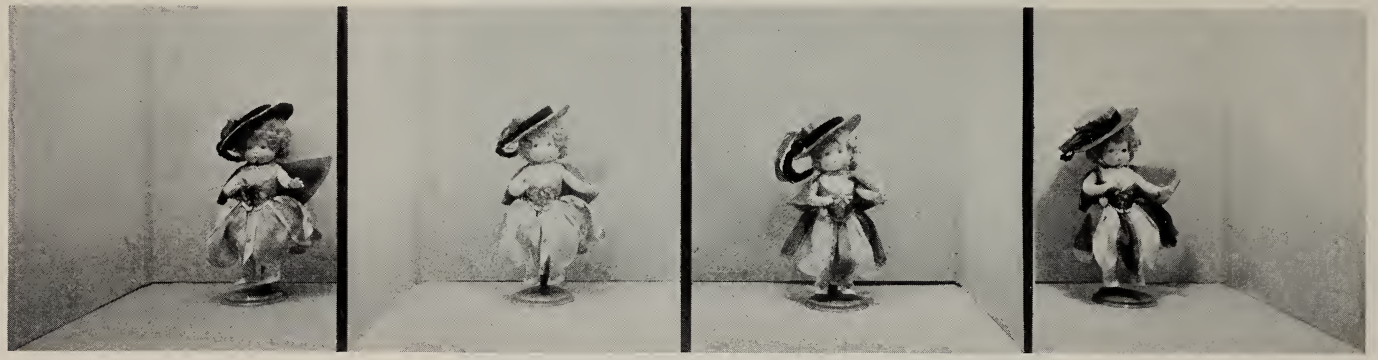


FIG. 2.—PANCHROMATIC PHOTOGRAPHS OF DOLLS GARBED SIMILARLY IN VIVIDLY COLORED COSTUMES AND DISPLAYED IN ILLUMINATION FROM VARIOUS LIGHT SOURCES

Seen under the light of Tungsten filament lamps, which are our most common illuminants, one of the dolls appears as a rosy-cheeked, blue-eyed, flaxen-haired damsel. The hat is of a vivid green, trimmed with one green feather, a black ribbon, and one black feather. The bodice is of orange, partly covered with grayish-blue material. The cape is of green, lined with red, and the skirt is of alternate panels of orange and grayish blue.

Seen next under the light from a combination of mercury and neon tubes, the doll herself does not look conspicuously different. The greens in the costume appear of a lighter tint; the reds are not quite so vivid; the oranges seem more yellow and the blues tend toward the violet. In some respects the difference observed under this combination of mercury and neon light sources is equivalent to that experienced under daylight. In other respects the rendition of colors is of a different character.

Seen under the light of the mercury vapor tube, all reds are gone. The doll is pallid and anemic of complexion; the flaxen hair is a grayish yellow. The greens are green, but of a lighter tint; the orange becomes yellow; the reds become brown, almost black and the grayish-blue is violet.

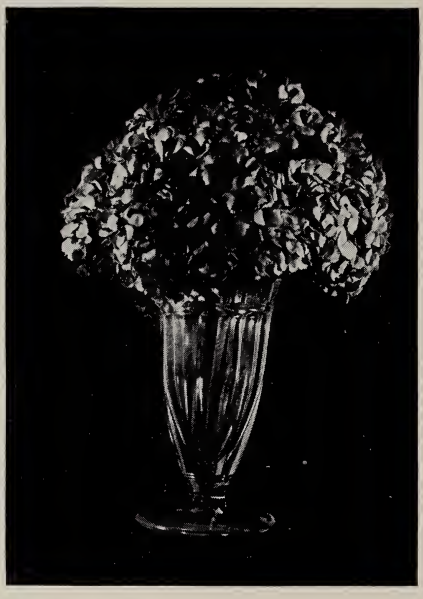
Seen under the light of the sodium lamp, the complexion is still more distressful, lacking all red tints; the hair becomes tawny; the greens appear as browns; the reds as burnt-orange; the blues become brown and the oranges become yellow.

fabrics is illustrated in Fig. 2. This indicates something of the appearance of dolls arrayed in colored fabrics when seen under lights of different colors. These differences are attributable to physical characteristics of the light and of the fabrics rather than to ocular effects.

Another effect, which is physical rather than physiological in character, is illustrated in Fig. 3, which has to do with ultra-violet

FIG. 3.—ULTRA-VIOLETS

Artificial violets photographed by Tungsten light



Artificial violets photographed by invisible ultra-violet radiation showing fluorescence of flowers and vase

radiation. Radiation of those wave lengths which are shorter than the shortest wave lengths of radiation which is perceptible as light produces no ocular sensation. When, however, fluorescent objects are irradiated they glow with a color value dependent on the fluorescent material. Fig. 3 shows two photographs of artificial violets to which fluorescent material has been applied. At the left they are illuminated by ordinary artificial light. At the right there is an indication of their appearance when irradiated by

invisible ultra-violet radiation. If it were not that the vase is of fluorescent glass and that the violets have been coated with fluorescent material, the photograph at the right would appear a black blank space. Both being fluorescent, however, they glow vividly and it has been suggested irreverently that they may be designated as "ultra-violets."

Langdon Davies in his book, *Man and His Universe*, has alluded to the popular conception that the typical scientist is devoid of all appreciation of the esthetic. He is thought to be as hard and cold and material as the facts with which he deals. This, Langdon Davies argues, is a misconception. He asserts that the scientific man can derive esthetic enjoyment and enduring satisfaction from the discovery of a new fact which can be added to the body of human knowledge and this is particularly the case if the fact can be applied to the advancement of the welfare of the people.

Preventing Blindness Through Social Hygiene Co-operation*

Lewis H. Carris

GREATER frankness in discussing the problem of syphilis may help to reduce this disease which is now the cause of approximately fifteen to twenty per cent of blindness

THERE is no part of the body that is immune to the savage attacks and ultimate destruction brought about by venereal disease. The internal organs—heart, liver, lungs, kidneys—the organs of sense—sight, hearing, smell—the skin and internal membranes, the glands, and the nervous system and brain—all may be subject to attack by syphilis or gonorrhea. We confine this discussion to the physical effects of syphilis and gonorrhea upon the organ of sight, for two reasons: first, because, of the common secondary points of attack of venereal disease, the eyes and the sense of sight are frequently and pointedly affected; second, since venereal disease is estimated to cause one-third of all blindness in children,† it becomes a most important problem, not only to those of us who are concerned with the prevention of blindness, but to those who must consider the family unity and the family welfare.

There can be little originality or novelty, at this date, in the exposition of the relationship between venereal disease and the eyes. The subject has been discussed from the medical point of view, from the social point of view, from the educational angle, from the public health angle. During the past twenty years, much has been said and written on this subject. Yet the very fact

* Presented at the Regional Conference on Social Hygiene given under the auspices of the Social Hygiene Council of New York, January 24, 1934.

† Causes of Blindness in Youth, as Determined at the Missouri School for the Blind, H. D. Lamb, M.D., Missouri State Medical Journal, March, 1926.

of the repetition of this relationship between venereal disease and the eyes stresses the need of discussing once more the facts of venereal disease as they relate to eye conditions.

Historical Theories on Ophthalmia Neonatorum

Although the venereal disease problem is as old as life itself, yet it is of very recent date that we have had definite proof of the very close and extremely dangerous connection between the eyes and venereal disease. One hundred and fifty odd years ago, a German physician, Quellmaltz, pointed out a possible connection between the strange malady known as "babies' sore eyes" and the discharge present in the birth canal of the mother. After many years, in 1808, Dr. Gibson, an Englishman, quietly repeated this observation, and added that with proper care in cleansing the maternal passages and in wiping the baby's eyes free of mucus after birth, much might be done to prevent the occurrence of this infection which so discouragingly and so frequently led to lifelong blindness. Had Gibson lived a hundred years later, he might have met with the honor of a prophet, but his colleagues of his own time paid little or no attention to his observation. They explained to the distressed mothers of babies who had lost their sight in this way that it was caused by a peculiar constitution of the atmosphere; by an unbalanced condition of the alimentary canal; by cold drafts or the sudden change the child underwent in coming into a chilly world. So thorough was the belief in the causal rôle of cold, that the Spanish Cortes, in 1837, decreed that all babies be baptised with warm water, since the cold water commonly employed was so often followed by sore eyes and, in many cases, by blindness.

It was a German obstetrician, Karl Siegmund Franz Crédé, who, in 1880, found that by instilling a drop of strong germicide, in this case a silver nitrate solution, into the eyes of every baby born to every mother, the cases of infection dropped from ten per cent to one per cent or less among the babies born in his hospital. Neisser, at nearly the same time, proved what many earlier seekers suspected—that in the discharges of the birth canal lurked the germ of gonorrhea, the same germ that caused, in six cases out of ten, the dreaded babies' sore eyes.

Some refinements have been added to the prophylactic treatment of newborn babies' eyes since Crédé's simple technique was put before a rather doubting world. But the principle has not deviated: the baby of every mother should receive the drops of silver nitrate—or an equally effective prophylactic—to prevent the possibility of an infection that might lead to blindness.

Progress in Prophylactic Measures Against Babies' Sore Eyes

In the past twenty-five years, the progress in preventing babies' sore eyes and in reducing this prolific source of preventable blindness has been gratifying. In 1908, twenty-seven per cent of the children entering the schools for the blind were there because of this infantile blindness. The determination of a group of people—among whom might be mentioned Dr. Park Lewis of Buffalo, who sought the facilities of the great medical network of the American Medical Association, and Miss Louisa Lee Schuyler, who helped to organize the New York State Committee for the Prevention of Blindness (since grown into the National Society for the Prevention of Blindness)—helped to promote the demand on the part of the public that every baby have the protection of these drops. The result of this concerted effort upon the part of doctors, public health workers, and persons of social responsibility is reflected in the figures for those now entering schools for the blind. In 1932, of children who were blind, only seven per cent became so through the once terrible scourge of ophthalmia neonatorum.

Syphilis, a Thief of Sight

Unlike the gonorrheal infection, syphilis is a more subtle thief of sight. When the disease is contracted by an adult, unless proper treatment is instituted early and carried on thoroughly, months or years after the first symptoms have disappeared, eye involvements may show themselves under many different guises. A list of possible eye manifestations of syphilis—acute iritis, inflammation of the vitreous body, diffuse keratitis, neuroretinitis, choroiditis disseminata, gummata in the choroid, optic neuritis, serpiginous choroiditis, aquo-capsulitis—is more confusing than impressive to the layman. These eye manifestations,

leading to greatly impaired vision and possibly to blindness, are among the commonest results of syphilis.

Syphilis, a disease which, in spite of the many laws requiring its reporting, is not yet under control even by the statisticians, is probably more prevalent in this country than any infectious disease except measles; according to Stokes, it attacks one in seven to ten persons. It is one of the greatest causes of death, in one form or another, and the cause, as nearly as statistics are able to tell us, of approximately fifteen to twenty per cent of blindness.*

Syphilis is of two types—the acquired and the so-called prenatal syphilis. The sociological implications of the latter are of special moment, since the transmitting of this disease with all of its latent and possible infirmities, attacks those who are unable to defend themselves, and deprives them, even before birth, of the opportunity to pursue the health, wealth, and happiness which is rightfully theirs.

The tragedy of the child who is born with syphilis is manifold. It is conservatively estimated that three out of every thousand babies die in infancy or early childhood because of syphilitic infection. This does not count the numbers of stillbirths traceable to syphilis. But their lot is perhaps easier than those who live with this pending disaster in their blood. In a series of syphilitic children between the ages of four and eighteen, eye lesions were found in all but 22 per cent of them; 52 per cent had interstitial keratitis, an involvement that may take away a large degree of vision when it does not blind; 26 per cent had other eye involvements. Optic atrophy, now a leading cause of blindness among children in schools for the blind, is frequently a result of congenital syphilis. The resultant loss in human suffering and distress, in economic waste, and governmental expense in providing homes for the blind, and special classes for those with seriously impaired vision may well be imagined.

We have learned a great deal about syphilis since, many authorities believe, it first spread like wildfire over the face of the civilized world at the end of the fifteenth and beginning of the sixteenth

* Blindness in Hamilton County (Ohio), Studies from the Helen S. Trounstine Foundation, Vol. I, No. 3, Sept. 1, 1918, and Proceedings of the 1926 Annual Conference of the National Society for the Prevention of Blindness, H. D. Lamb, p. 23.

centuries. Its virulence was so great that it nearly overwhelmed a population not partially immunized, as we are today, to its first onslaught. The history of medicine from the end of the fifteenth century through the end of the eighteenth was rife with theories, cures, speculations and methods of treating the "French pocks," the "Spanish disease," or the "Italian pox," as it was variously called. The nineteenth century gave us the first great syphilologists, Ricord and his pupils, who wrote a large part of that which we now know of the clinical manifestations of this disease; not until Schaudinn, a German physician, suddenly found in 1905 the germ that others had been seeking for a score of years, did our knowledge of syphilis materially increase beyond that of Ricord and many of the earlier students of this disease.

Following the isolation of the spirochete, Ehrlich found the "magic bullet," 606, that would kill this destroyer of bodies and senses; Wassermann developed a blood test that shows syphilitic infection even in its early stages; and the study of syphilis was given renewed impetus.

Prenatal Syphilis

The seriousness of the effects of syphilis may be more acutely appreciated by tracing a typical transmission of the disease.

A young Canadian woman married some twenty years ago. Two daughters, born of the marriage, were recently brought to an eye clinic for diagnosis. The older, now a fine looking girl of eighteen, is nearly blind because of optic atrophy, and there is no hope of saving her sight. The younger girl of sixteen has seriously impaired vision, the result of interstitial keratitis, but with prompt care her sight may be preserved at its present level. Syphilis, acquired before birth, accounts for both these cases. Unaware of her infection acquired from her husband, the mother had communicated the disease to her unborn children.

Syphilis, despite the misleading term "heredosyphilis," is not an hereditary disease, but is acquired by the unborn child during the period of gestation. No mother can give what she hasn't got; no child "inherits" syphilis whose mother did not have the disease at the time of her pregnancy. How fortunate this is for the child yet unborn! When a prospective mother is known to have syphilis,

it has been demonstrated that treatments begun sufficiently early in the period of gestation will inhibit and prevent the development of the disease in the unborn child. What must be determined, however, is which mothers need treatment.

Knowing the great damage that syphilis does in the second generation, realizing the frightful toll of neonatal deaths and stillbirths caused by this destroyer of babies, realizing further that three out of every hundred babies born are syphilitic and live to suffer the impairment of sight, hearing, motor centers, or one or more of the many other afflictions which ride in the path of heredosyphilis, the sections on Ophthalmology, Dermatology and Syphilology, Nervous and Mental Diseases, Pediatrics, Obstetrics, Gynecology and Abdominal Surgery, and Preventive and Industrial Medicine and Public Health presented the following resolution to their members and to the House of Delegates of the American Medical Association:

WHEREAS, Heredosyphilis or congenital syphilis is responsible, among its other adverse effects, for interstitial keratitis and for many uveal and neural changes resulting in defective sight and blindness, and,

WHEREAS, Heredosyphilis through the early and effective treatment of the infected pregnant woman is a preventable disease, and if treated in the child before organic changes have occurred is curable, and,

WHEREAS, It has been found that an average of 8 to 10 per cent of women in prenatal clinics have positive Wassermanns, in various clinics the figures ranging from 3 to 30 per cent, and it has been estimated on the basis of group studies that 2 per cent of children taken in the mass and a considerably larger proportion of those under one year of age have heredosyphilis and that about half of these children without adequate treatment develop interstitial keratitis leading to defective vision if not blindness, and,

WHEREAS, This deplorable condition can be controlled only by the combined efforts of the medical, the social and public health authorities, therefore be it

Resolved, That the [State and Provincial Health Authorities of North America] request the House of Delegates of the American Medical Association to appoint a committee to take this subject under advisement and to arrange methods by which co-operation may be secured through the combined efforts of the National Society for the Prevention of Blindness, the American Social

Hygiene Association, and professional societies of the syphilologists, obstetricians, ophthalmologists, public health organizations, and such other organizations as can help, in order that blood examinations may be made of all pregnant women so that methods may be arranged for the treatment of all those infected with syphilis, thereby preventing the blindness and other tragedies which would otherwise inevitably follow.

The plan of action decided upon by the Board of Trustees of the American Medical Association is outlined by Dr. West, secretary of that body. "The American Medical Association is to use the facilities at its command for the purpose of enlisting the interest of the medical profession in the movement to reduce the prevalence of hereditary syphilis. Through editorials in the Association's publications, and through scientific papers dealing with various phases of the general subject under consideration, an effort will be made to disseminate helpful information for the benefit of the members of the medical profession."

Prevention of Prenatal Syphilis a Broad Undertaking

The history of the partial conquering of the infection of newborn babies' eyes, ophthalmia neonatorum, may be repeated in this new campaign against congenital syphilis; when Crédé began to protect the eyes of the babies born in his Leipzig hospital, he sought first to treat the eyes of all those whose mothers showed clinical symptoms of gonorrhea; this reduced the number of cases to some extent, but not enough. Not until he treated the eyes of every baby of every mother did his results show that the infection was finally and definitely conquerable. Not until every mother, rich and poor, young and old, friend and stranger, has a blood test as part of her prenatal examination, shall we be able to prevent the carrying on of syphilis to the second generation. Medical initiative and public demand together will reach the point at which we aim: to give every baby a chance to be born sound and healthy and free from taint.

We are glad to say that already great progress has been made in this respect in the clinics of most hospitals in New York City; in almost all good obstetrical and prenatal clinics, a routine blood test is made on every patient. And it is of special interest to us

who would increase the numbers of mothers seeking early and complete prenatal supervision that Mayor La Guardia has recently loosened the hospital department regulation that ruled if a woman had already had prenatal examination and advice, she might not be admitted as a city patient to the maternity wards of private hospitals, since foreseen maternity did not constitute an "emergency."

From the point of view of a health education and eyesight conservation agency, we have some reason to point with pride to the fall in the figures for the incidence of ophthalmia neonatorum; we may, ten or fifteen years from now, be able to show an equally great decrease in the number of children in schools for the blind, there because of syphilitic lesions. But the wider view of the problem shows us to be mopping up the floor without turning off the overflowing spigot.

Despite our knowledge, and the widespread application of it, that ophthalmia neonatorum is entirely preventable, seven out of every hundred children in schools for the blind did not profit from it. The amount of reduction which was so marked at the beginning of the campaign twenty-five years ago becomes less and less each year. Not until the wider problem of the prevention of the spread of venereal disease is included in the efforts, not of any one organization, but as a community, a state, a national and world-wide undertaking, shall we find an assurance of the ultimate wiping out of these diseases.

In this state, the need for medical attention is well recognized. Venereal diseases are reportable diseases, although they are, unfortunately, not reported fully. Free clinical care, free diagnostic service, free medicines, are provided for those who cannot pay for them. The great hazards which lurked in the activities of quack doctor and quack medicine, are being dealt with by the authorities. The social responsibility for seeing that disease in one member of a family is treated does not end with that one patient; we are aware, and medical social workers are aware, of the need of proving conclusively that no other member of that family is similarly affected.

Medically, legally, socially, we are building our fences with care to prevent the greater onslaught and spread of these diseases.

But as a community, responsible for the education and guiding of the ideals and modes of living of the young, we must help to circumvent the social reasons for the continued spread of venereal disease. We must take the onus of morality and shame out of the social disease question, and air it in the wholesomeness of public light. From the medical point of view, the conquest of venereal disease offers no greater problems than the overcoming of smallpox, of diphtheria, of tuberculosis, provided modern knowledge can be applied.

The Medical Social Eye Worker and the Community*

Ruth E. Lewis

MEDICAL social workers have direct opportunities for doing positive preventive work. Visits to the homes of patients often reveal inadequate lighting, for instance, or the social worker may suggest a better balanced diet for the family

THE medical social worker in the eye clinic of a general hospital or out-patient department touches the community in the interests of prevention of blindness through three phases of her work; first, through social case work participation in the care of selected patients with discovered pathological eye conditions; second, through her clinic teaching of a larger group regarding the nature, cause, and treatment of their conditions; and, third, through the exertion of her influence as a member of the community and one conversant with the need of the development of better facilities for the protection and care of the eyes of its members.

Social Factors in Eye Health

Much has already been written of the function of the medical social worker in the medical care of all patients, irrespective of their diagnosis. The discovery of social factors regarding the eye patient which might have some bearing on the etiology or progress of his disease would seem to have as much potential value as in other clinical pictures. For instance, the nutritional history of the

* Presented at a luncheon meeting on "Medical Social Eye Service in Relation to the Community," given under the auspices of the National Society for the Prevention of Blindness, with the co-operation of the North Atlantic District of the American Association of Hospital Social Workers, the Medical Social Service Section of the Welfare Council of New York City and the Department for Prevention of Blindness of the New York State Commission for the Blind, in New York, November 25, 1933.

child who is suspected of having xerophthalmia may be of great importance in relation to early instigation of treatment. The work of Yudkin of Yale in producing cataracts in animals by vitamin G deficiency, although the relationship has not been conclusively proved in man, is another indication of the possible correlation of social and medical factors, and of the need of going more fully into the food habits of our patients. It has been said by some ophthalmologists, at least, that the stresses of the emotional life of the patient with simple, non-congestive glaucoma have or may have some etiological significance.

Very little has been done so far to study any group fully enough from the social angle in collaboration with an ophthalmologist for one to speak with any assurance of the etiological value of social information in general. However, significant social information may help in the understanding of the person as a human being and may serve as a guide to the doctor in his management of the patient. The impression of the onset of the disease and its previous treatment upon the mind and feelings of the patient, the fears regarding the disease and its care, the responsibilities which he has and must continue to bear, may help to determine to a certain extent the medical recommendations which are given, the way in which they are expressed, and, to even a greater degree, determine the statements regarding the outcome.

Relationship Between Patient and Worker

After considering the whole medical situation with the physician, the social worker has an opportunity, at the beginning of the treatment, for supplementing instruction and interpretation, and helping to establish a relationship between the patient and the clinic which will insure the patient's carrying through treatment. Follow-up, used now in a broader sense than when applied to various mechanical systems for reminding the patient when he should return, may be considered to start here. Some of the studies which have been made in the last few years in measuring the results of various systems show that though there will usually be, if there are not too many other factors outside the case worker's control, decided improvement in the percentage of the patients who carry through the treatment advised with what has been

called a "tag along" system, the substitution of a planned program of interpretation, adapted to the needs of the individual and beginning at the time of the first visit, will increase the percentage of completed treatments still further.

This relationship and the patient's understanding of his needs will help to bring to the attention of the worker possible obstacles to the continuance of the desired type of treatment. They may be found within the patient's own reaction to his situation; on the economic side, they may threaten the securing of adequate medical care. At the same time, the misconceptions and prejudices of those about the patient may raise questions in his mind. In her attempts to help the patient find a way to face and meet his situation in its totality the social worker is making possible the medical treatment which may definitely prevent blindness.

Social Eye Worker—Initiator and Integrator

These case work adjustments bring the worker in contact with all the other organizations of the community interested in the prevention of blindness, and, more especially, with many who have unrecognized opportunities for doing something in this field. The social worker here may be only the integrator, or she may be the initiator, of interest. Securing the child's school report becomes an occasion for discussing the relationship of poor vision to retardation in school and the opportunity which the school has for safeguarding the eyes of the children through proper lighting, arrangement of desks, blackboards, etc. Although this may be secondary to the adjustment of an individual child, the importance of the old, and perhaps familiar, injunctions regarding these points seems to increase because of their significance in the life of a real child. The interpretation of the need of a particular child for sight-saving class opportunities may create the first interest in the possibilities of establishing a class. The social worker who has followed a child with progressive malignant myopia during her days in a sight-saving class, only to discover that, upon entering high school, she is registered in a business course which involves doing very fine work, will have at hand good evidence of the need of vocational counsel and more exchange of information and advice between the schools.

The employment problems, especially, bring the social worker in touch with a non-medical group not very familiar with eye difficulties, and present a challenge which a medical social worker has a special responsibility in meeting because she is closer to the sources of medical knowledge, and at the same time is acutely aware of the social implications. Until more can be determined about the extent of the visual handicap in terms of limitation of activities, placement, except on a trial and error basis, is impossible. The large numbers of patients going through clinics should make possible the study of visual efficiency of a fairly homogeneous group as far as intelligence, extent of visual field, etc., are concerned. This knowledge of visual capacity in terms of every-day activities should help to avoid the discouragement of the visually handicapped which results when they are sent to try one job after another, only to find that because of their defective vision they cannot satisfy the employer, and to avoid, as well, in some instances, a return to conditions which might be damaging to sight.

Medical Social Eye Worker an Interpreter

In these days, when so many hospital patients are the clients of relief agencies, the majority of these adjustments are the responsibility of the non-medical worker who has a right to feel she may depend upon the worker in the eye clinic for instruction and guidance in the medical aspects of the situation. It is here, probably, that the social worker becomes an interpreter. The reports to the other workers should give them an understanding of the patient's condition, the treatment, and prognosis, and it is hoped that the information may help in the care of other clients as well as in that of the specific patient. The following reports might serve such a purpose:

Mrs. Grace Smith,
Intake Department,
Provident Association,
St. Louis, Mo.

My dear Mrs. Smith:

As you know from my telephone conversation, George has been under treatment in the eye clinic since September 14 of this year for a phlyctenular keratitis of both eyes. This is a manifestation

of his general physical condition. It may be a response to an infection in some other part of the body or the result of a generally lowered resistance; in the latter connection the condition has often proved to be pre-tuberculous.

The conjunctiva—the thin membrane which lines the eyelid and covers the exterior of the eyeball, with the exception of the central portion—becomes red and small, and ulcer-like nodules, known as phlyctenules, appear. There is a loss of surface on each of these phlyctenules and, as a result, scar tissue is formed in the healing process. When these phlyctenules are on the cornea, vision is impaired. As you know, the cornea is the clear, front part of the eye which has been superimposed for the same purpose, and in the same manner, as a watch crystal. Its purpose is to protect the interior of the eye and yet to admit light. When these phlyctenules appear on the cornea and heal, leaving opaque scar tissue, you can see that they may affect vision. This, of course, is the most serious manifestation. When the cornea is thus involved, the patient makes every effort to shield his eyes from the light. There is a large amount of tearing and frequently the skin around the eyes becomes affected.

The treatment for this condition is both general and local. The general treatment consists of a high caloric diet, including whole milk, fresh vegetables, butter; exercise in the sunlight (the direct exposure to which is most important) and regular elimination, etc. The local treatment consists of eye drops which help to keep the rest of the eye from being involved in the infection, and the use of dark glasses to shield the eyes from the sunlight which is so necessary a part of treatment.

When Mrs. Jones had George in the clinic on September 28, she reported that she had received her grocery order from you the day previously, and that on that day she had fed him as she had been instructed. She evidently was doing an excellent job, for when she brought him back to the clinic on October 5, he was tremendously improved, so much so that his doctor remarked upon it again and again.

It is necessary, of course, to continue this régime which has been started, since the condition is one which is prone to recur if the treatment is not carried to the point of a generally improved condition. In fact, George did have one such episode as this in November, 1930, and, as a result of that incident, does have some small corneal scars. It is impossible for the doctor to say at this time how much permanent impairment of vision there will be because the scars do have a tendency both to thin and to shrink with time. It is thought, however, that the visual impairment

will be comparatively slight, since one of the eyes is practically unaffected.

In addition to these more objective elements of treatment, it is well to give some consideration to the effect it may have upon the child's relationship in the family, and to the whole emotional content both for him and the other members. It is quite evident that his daily routine is greatly affected and that he must be singled out for much solicitous attention. These aspects will be of varying significance, of course, depending upon the pattern of relationship which is found in this particular family.

If you or the family have any questions, I shall be glad to have you get in touch with me.

Very truly yours,
Social Worker, Eye Service.

Mrs. Priscilla Oakes,
St. Louis Provident Association,
St. Louis, Mo.

My dear Mrs. Oakes:

Although the doctor and I both talked with Miss Kenwood on the two occasions she had Rosella in the clinic for examination, she indicated that she would like very much to have us report to you in writing. Since it appears from Rosella's condition that she will need constant observation and treatment, there will be great advantage to both of us in working together as closely as possible.

As Dr. A. told Miss Kenwood, Rosella has what is known as malignant myopia. This is an extreme case of nearsightedness which has a tendency to become gradually worse, cutting down the vision as it progresses. Medical authorities do not agree exactly on just what causes these high degrees of nearsightedness nor what it is that makes them become worse and worse. Rosella's doctor, however, thinks that the condition is closely tied up with her general health and nutrition. Perhaps because of some systemic condition, perhaps for some other reason, the sclera, which is the tough outer coat of the eyeball which helps it to hold its shape, has become weakened in these cases and it tends to stretch and stretch. As it stretches, the eyeball becomes deeper and the light rays entering the eye are thrown into poorer and poorer focus. As the condition progresses, certain changes take place within the eye itself which add to its degeneration.

It appears from Rosella's examination that her condition has progressed considerably since her present glasses were ordered by Dr. A., and that her condition is in a rather rapid state of change and needs the most careful treatment. The new glasses which were

ordered today improve Rosella's vision from being less than 5 per cent of normal to 85 per cent of normal. This is, of course, a tremendous improvement, and if we could feel at all sure that Rosella would be assured of maintaining her present amount of sight, her eyes would not be a problem. Since, however, judging from the past, it seems quite likely that the vision may become much worse, our doctor is recommending placement in the sight conservation class at the Cupples School. We gave the application blank for this admission to Miss Kenwood and suggested that it be presented to the Blossom School, which is the regular public school in your district, and the principal there will then arrange for Rosella's admission to Cupples.

In addition to admission to the sight conservation class, the physician recommends that Rosella have cod-liver oil at least twice daily and some medicine, the prescription for which I am enclosing. One tablespoonful is to be dissolved in a cup of milk and taken daily. The purpose of the medicine is so to build up the general physical condition that, if possible, further degeneration of the sclera will be avoided. In addition to this, Rosella is to continue to put the atropine in the right eye only twice a day. The drops prevent the child's using the eye for too close work, since using the eye for close work is very much harder on it with this condition than using it for distant vision. After a given period of time, the medication in the right eye will be stopped and the left eye will then be given a period of rest by the medicine. For Rosella to use both eyes together tends to encourage the progression of her disease.

Since the two factors which will be most important in delaying the progression of this condition are, first, minimum use of the eyes, and, second, a maximum degree of general health, the doctor recommends that Rosella spend as much of her free time outdoors as possible. Of course, her outdoor play should not be too strenuous. For instance, she should not indulge in tug-of-war or very strenuous ball games where it is necessary for her to be jumping and dodging and bending over and also running the danger of being struck a severe blow. Of course, we realize perfectly that if we recommend that the child spend a great deal of time outdoors, it will be necessary for her to have some way of passing the time. Although there is a certain degree of hazard in any activity (since any sudden blow to the head, such as would occur in a fall or being hit by a ball, etc., might cause further damage within the eye), outdoor play with a group of little girls about her own age, engaging in not too strenuous games of tag, bouncing soft rubber balls, or walking, ought to be most acceptable.

We wish to see Rosella in the clinic in four weeks, which will be

February 25. Contrary to our usual arrangement, we are making plans to treat Rosella on Saturday morning in order that she may not miss any more time from school.

Although Miss Kenwood gave us a very brief verbal report of the situation, we are wondering if we may not have a written report from you giving Rosella's likes and dislikes and a general outline of her use of free time, her food habits and her ability to get along with other children.

Very truly yours,
Social Worker, Eye Service.

Relationship with Other Medical Social Workers

The eye clinic worker, as a member of a staff of other medical social workers, all of whom may keep in touch with the patients who start treatment in their respective clinics, may work out many of the problems of her eye patients through these other workers. For example, a patient may be admitted to the diabetes clinic; the worker there becomes concerned about how he is going to get his diet and insulin; later he may be found to have retinitis and be referred to the eye clinic. The eye clinic worker would then give the recommendations of the ophthalmologist to the first worker, who would see that they were integrated for the patient with the instructions from the diabetes clinic. Thus, an opportunity is created, case by case, for the rest of the social work staff to gain knowledge of eye conditions and their implications. The eye clinic worker may have to begin with explaining the meaning of 6/12 or 20/40, but she may consider herself the specialist in the interpretation of these findings and help to bring added consideration to eye conditions, or to conditions which may produce them, in the whole case load of the agency.

Integration of Findings

Through the understanding of the patient's situation, the social worker has an opportunity for doing some positive preventive work in direct health teaching of patients. Very little attention is being paid in most clinic ophthalmic practice to the general nutrition of patients. This does not refer to the conditions in which special dietary advice is necessary. Is it not possible that, with adequate knowledge of balanced diets and the protective food

constituents, the social worker may help to increase the patient's general resistance?

Visits to the home often reveal inadequate lighting; although the school lighting facilities may be good, children may be doing their outside assignments under most unsatisfactory conditions. Attention to these details may not only improve the situation for the patient, but are of benefit to the rest of the family as well.

We have often heard that the satisfied patient himself may be the best publicity person for good eye hygiene and medical care, but he must be cognizant of the significance of the important factors. A woman with glaucoma who had greater impairment of vision than she might have had if she had sought treatment earlier may, if she fully understands that fact, send her friends who notice failing vision to an ophthalmologist earlier than they might have gone otherwise. The extent to which patients are able to do this effectively goes back to the interpretation given them in the medical institution. In this interpretation, the medical social worker may share some responsibility with the physician.

Conclusion

For a social worker to fit into an integrated eye health program it is necessary for her to be conversant, among other things, with various eye conditions, their symptoms, course, and treatment, their social implications, the physiology of seeing, the principles of eye hygiene, standards of illumination, the methods of educating the visually handicapped, as well as to be a good social case worker. To gain this knowledge on the job means learning at the expense of the patients. It requires opportunities for learning that are not ordinarily available in the average eye clinic in the regular day by day work.

Medical social workers are in a strategic position for correlating the medical and social forces of the community interested in the prevention of blindness and are challenged by this opportunity.

Editorial

George Blagden*

1867–1934

WITH a sense of personal as well as community loss the National Society for the Prevention of Blindness records the death, on March 22, of its counselor and friend, George Blagden. Becoming interested in the work of the Society in 1913, when it was still a state committee, he helped with unceasing effort to develop it into a national organization built upon a firm foundation, with an influence reaching far beyond the confines of the United States.

His presence always radiated cheer and gave a feeling of security based on wise thinking. Largely because of him this Society, of which he was treasurer from 1913 to the time of his passing, was able to weather the storm of depression. His was no mechanical service; no detail was too small for his attention, no task too great for his undertaking.

The Executive Committee and the members of the staff of the National Society for the Prevention of Blindness extend to his family their deepest sympathy.

May the mantle of his wisdom fall upon those who carry forward the work to which he gave such a full measure of devotion!

* Resolution adopted at a special meeting of the Executive Committee of the National Society for the Prevention of Blindness, March 27, 1934.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

Automatic Light Control in the Modern School*

The sense of sight is the most important avenue through which the normal pupil receives impressions in the educative process. The complex operation of seeing is dependent upon vision and illumination. Objects are seen clearly in proportion to the acuity of vision and the illumination of those objects and their surroundings.

While the human eye is perhaps the most complex and highly developed organ of seeing in the animal world, it is, at the same time, the most easily impaired by undue strain or disease. Long-continued eyestrain on the part of a pupil results in impaired vision, reduced rate of progress in work, lowered efficiency, repetition of grades and discouragement of effort.

Acuity of vision may be controlled and improved by appropriate lenses. Lighting may be controlled and improved with respect to all of its elements. Modern building science and engineering efficiency in artificial lighting have placed within reach the means of controlling the quantity, the distribution, the direction, the diffusion and the spectral character of light.

The Eye a Poor Judge of Light Values.—Adequate school lighting may be defined as that continuous status of illumination within which the human eye can function with the highest possible efficiency with the least possible fatigue under normal conditions. Under such conditions the worker is least aware of the factor of illumination since the balance of quantity, distribution, direction, diffusion and spectral character is neither unusual nor lacking.

* Extracted from *The Nation's Schools*, vol. XII, No. 5, November, 1933.

Fig. 1.—Foot-candles of illumination at the working surfaces of desks. Sky completely overcast and raining. Time, 9 a.m. North orientation. Values below 10 foot candles as indicated by the broken line are insufficiently lighted.

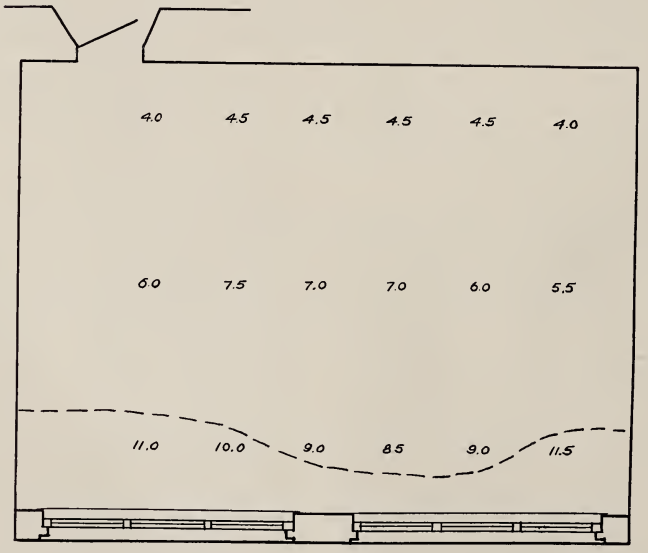


Fig. 2.—Foot-candles of illumination at the working surfaces of desks. Sky completely overcast and raining. Time, 8:30 a.m. South orientation. This represents conditions on the same morning as that of Fig. 1.

Continuity in the status of illumination is here emphasized, because, while the human eye rapidly adjusts itself to changes in illumination, the character of school work tends to limit this range of adaptability and make strain and fatigue with their harmful results more apparent. It is this same ability of the eye to adjust itself to variations in the illumination factor that makes the eye an unreliable judge of the efficiency of lighting. The average individual is far more able to judge normal temperature fluctuations than he is to judge adequate lighting conditions. If the temperature in the average school room drops more than four or five degrees below normal, it is noticed at once and there is a call for heat. The illumination of the room, however, may fall far below ten foot-candles without the fact becoming noticeable.

Figure 1 and Figure 2 illustrate unsatisfactory lighting conditions in two schoolrooms that were accepted by teachers as normal, evidenced by the fact that no artificial light was used. These teachers, although considerably above the average in general ability, were clearly unaware of the conditions that were producing a high degree of eyestrain among pupils in these rooms.

Automatic Light Control Essential.—For many years room heating has been controlled by automatic thermostatic devices. These instruments have been refined and their service extended so that their specification is no longer questioned in school buildings. Only recently, however, has it been recognized that similar automatic control of lighting is necessary, desirable and possible.

The recent perfection of the photo-electric relay and the illumination meter have made possible for light control what the thermostat and thermometer have done for heat control.

The photo-electric relay turns on and off the lights in a room or group of rooms automatically, using as its operating means the light intensity within the room or the light intensity entering the room from the outside. The intensity at which the relay is set to turn the lights on or off is determined by the use of the illumination meter, which is a highly sensitive type of photometer, using two photo cells for differentiation in readings.

While the photo-electric relay has a capacity large enough to operate the lights in an ordinary classroom, the cost of a photo cell for each room is an unnecessary if not a prohibitive expense. By the use of larger relay switches, which can be actuated by the photo-electric relay, any number of rooms requiring the same range of illumination can be connected to the same relay switch or circuit breaker.

The installation of this equipment in the Garfield Elementary School, Wyandotte, Michigan, was described briefly in the October number of *The Nation's Schools*. The building being used for experimental light control is approximately 279 feet long by 104 feet deep, of the I type. The building is two stories high and has a south orientation. It has a cubage of 834,400 feet. It is designed for a twenty-section semidepartmentalized type of organization. Construction units are 15 feet wide by 22 feet deep. Two such units comprise an ordinary home room, and three units are combined for an art room or library. The window stools are 2 feet 9½ inches from the floor, and the plaster opening is within 3 inches of the ceiling. The windows are arranged in two banks with narrow mullions, the pier in the center of a two-unit room being 3 feet wide. The ratio of window area to floor area is approximately 1 to 3.2.

Artificial lighting consists of six units of 200 watts each in home rooms 30 by 22 feet. Each lighting unit is of the reflex type of glassware, 14 inches in diameter by 9 inches deep. These units are manually controlled by a single toggle switch on the operating board just inside the room entrance door. Three-unit rooms have two toggle switches controlling the lights in two gangs, one on the window side of the room and one on the side opposite the windows.

The lighting in all classrooms, home rooms, and corridors is controlled by three photo-electric relays, A, B and C. Relay A controls all the rooms on the south orientation, Relay B controls all the rooms on the north orientation and Relay C controls the corridor lighting.

The photo-electric relays are recessed into the wall opposite the window openings in selected rooms, with the relay window opening 7½ feet above the floor. The corridor relay is midway in the corridor at the same height.

Conduit lines lead from the photo-electric relays to three remote controlled switches, or circuit breakers, having capacities of 60, 100 and 200 amperes, respectively. The room and corridor loads are distributed between these three circuit breakers. Each room has its manual control switch for lights the same as in the ordinary layout. There are three small momentary contact switches in the principal's office, one for each of the circuits controlled by the three photo-electric relays. Each contact switch has three points, which makes it possible to produce three different conditions on each circuit, according to the particular requirements of the moment:

1. The entire group of circuits may be placed on manual control so that each room will operate as a separate unit.

2. The entire group of circuits may be placed on photo-electric control so that the lights will operate automatically.

3. The entire group of circuits may be turned off so that the circuits will be dead.

In actual operation, the contact switches are turned on "automatic control" when school opens in the morning. Every room then receives light as needed and when natural illumination becomes sufficient the lights turn off automatically. They turn on again, however, when the illumination falls below the critical point set. If a room is not in use, the lights may be turned off at the regular room switch manually, thus avoiding waste of current. However, if the photo-electric relay is not calling for light, the light cannot be turned on at the room switch.

The contact switches in the principal's office are turned on "manual control" at the close of the day's session. This means that only such rooms as are in use after the session will be using light. All circuits except the emergency lighting are turned off when the building is closed for the night.

Some questions may be raised as to the necessity of separate photo-electric relays for north and south exposures. Contrary to general opinion, with equal window area and floor window ratios, there is less demand in northern latitudes for artificial lighting on a north exposure than on a south exposure, due to better diffusion of light.

In a test conducted on a typical overcast day, lights on the north exposure were in use for one hour and thirty-five minutes, while lights on the south exposure were in use for six hours and five minutes. The lights on the north exposure burned during the following periods: 8:15 a.m. to 9:06 a.m., 2:10 p.m. to 2:20 p.m., and 3:16 p.m. to 3:50 p.m. The lights on the south exposure burned during the following periods: 8:15 a.m. to 11:30 a.m., and 1:00 p.m. to 3:50 p.m.

Local conditions, such as trees, the nearness of other buildings, smoke, use of shades and condition of the window glass, affect the relative demand for light and may make certain orientations use more light than they normally would.

The setting and checking of the photo-electric relay are of prime importance. If ten foot-candles are set as the minimum of illumination for a working surface, this should be applied to the darkest working surface of the room. This will ensure a minimum of ten foot-candles of illumination for every pupil. The photo-electric relay may then be set to turn the lights off when the value reaches eleven foot-candles or any other desired point.

Economy in lighting is desirable, but economy should mean control over needless waste of current. Manual control, even under constant supervision, often results in

waste of current. It is not uncommon to find lights burning in direct sunshine. Too great pressure from administrators in the interest of economy usually results in inefficient use of artificial light and consequent damage to pupils' eyesight.

The question is often asked, will automatic control of lights save money? That depends upon conditions. If there has been an honest effort to provide pupils with an adequate amount of light, or if there has been a large waste of current when not needed, there will be a marked saving with automatic control. If, however, pupils have been deprived habitually of the necessary amount of illumination, there will be no saving in electric current cost if the control relay is set to give an adequate amount of light. The cost of installation in such a building as described above is approximately $500. The ultimate saving to pupils' eyesight is incalculable.

Fred W. Frostic
Superintendent of Schools,
Wyandotte, Michigan

Headaches in Children

When a baby is born its senses of taste and hearing and its sensitivity to pain, heat and cold are probably developed just as acutely as they ever will be. This is not true of its vision. For the first few months of life the baby has to learn the use of its eyes and learn slowly to interpret what it sees. This doesn't mean that it does not receive pictures of what it looks at clearly, from the very beginning, but its eyes are not co-ordinated and are apt to roll in various directions; its perception of depth and space is quite undeveloped. This development takes place when the child begins to reach for objects it sees and begins to realize that the picture it sees of a milk bottle has a direct reference to what its tongue knows milk to taste like. In short, then, our perhaps most valuable special sense is the slowest of all the special senses to develop to its perfection.

Any handicap which the child sustains in its early development, such as nutritional disturbances and diseases such as mumps, measles, and other infantile sicknesses, may, and often does, disturb this slowly acquired visual function. It is a well-known fact that in early childhood cross-eyes are apt to develop after some sickness which lowers the child's resistance, or after some trivial fall or bump which is a general shock to the child's nervous system. In this regard children vary greatly. One finds that the rather phlegmatic, solidly built type of child is not as likely to have ocular muscle difficulties, with headaches or cross-eyes, as are the more nervous children.

The years up to school life, then, are years in which the development of children's vision and finer de-

grees of space perception takes place, and in which the two eyes are co-ordinated so that these two cameras give one satisfactory mental image. During the first years of school life comes the time when the first symptoms of ocular strain are encountered, although this may in less sensitive children be delayed until their high school years, when work is crowded a bit. No eye is, optically speaking, perfect; but, unless the defect is quite marked, normally balanced, healthy children go through their school years without needing attention for minor optical defects. Markedly farsighted or nearsighted children have their optical defects discovered in their early school years. The former defect causes headaches and blurring of print; the latter prevents clear vision from back seats of the schoolroom. These children need glasses earlier in life. As school work increases, the minor defects may be evidenced in high-strung children by repeated complaints of headaches, tiredness, restlessness, inability to concentrate on any task for any length of time, feelings of faintness, red-rimmed eyes, and easy tearing. In this group the correction of minor errors is of great importance.

Children in this group are easily upset by a bit too much light, or by a bit too little light, by glare from the walls or ceiling, disturbing noises, and so forth. In general, the headaches of the school child occur after school hours and are often fleeting and often easily dispelled by a bit of exercise, a piece of bread and jam, or a glass of milk, or by a dose of castor oil. If due to the eyes, however, they persist in appearing after school hours and we find, as a rule, frontal headaches with a minor amount of refractive error—usually farsighted astigmatism. In the adolescent age, we find girls more frequently than boys have these symptoms. The boys are living a somewhat healthier type of outdoor life, not studying quite so hard, nor going through the developmental changes which in themselves upset the equilibrium of so many girls.

All headaches, of course, are not due to the eyes. One must be careful not to prescribe glasses indiscriminately, but to examine the tonsils and teeth and, especially, the sinuses, if there is any indication of frequent colds or chronic dripping of mucus down the throat in the mornings. Fresh air, exercise, a cold sponge with a brisk rubdown in the morning, early bed, few movies, may be as beneficial as eyeglasses applied for a minor error. It is known that optical companies and non-medical men are permitted to prescribe glasses in most states of the Union. Their advertisements in the street cars and newspapers tend to make the lay reader believe that almost all headaches can be cured by glasses, and, as their profit in business

comes mainly from the sale of glasses, there are large numbers of not only children, but people in general, wearing glasses who do not really need them. A child should be sent for examination of its most precious special sense to a well-qualified medical man who has, in addition, spent the necessary years in preparation for the special diagnosis of the diseases of the eye. If he is in other respects a proper doctor, he will not feel that all headaches should be divided, as Caesar divided all Gaul, into three parts: first, headaches due to the right eye; second, headaches due to the left eye; third, headaches due to both eyes. There are many other reasons.

The routine examination on a child's eye is not, to me, an absolute necessity. Ninety-nine times out of a hundred a child who has enough defective vision or enough objective discomfort from his vision to amount to anything will complain of it in sufficient time so that it can be properly attended to. (I know this is heresy, but it is the way I feel about it.) I find many children sent to me because school nurses have rendered a report to the parents that the child's eyesight is defective. Most of these examinations are not conducted under standard conditions and some children are easily confused and much of the work is done in a hurry.

A great many school children show some slight deficiency in vision which is theoretically interesting but which, practically, does not need any treatment or glasses. Certain instruction regarding care of the eyes could be given to children in all public schools in the course of a few minutes for each class.

1. Never carry a pointed object upward, but always with its point down.
2. Report to an eye specialist the first day that eyes are inflamed sufficiently to cause a secretion of any yellow or white material.
3. Before an eclipse of the sun, warn all school children that they must not observe the eclipse through anything but the most darkened of glasses.
4. Do not share the towels or bedding with a child who has "sore eyes."

HANS BARKAN, M.D.
San Francisco, California

Note and Comment

National Society Moves Headquarters.—About the first of April, the National Society for the Prevention of Blindness, along with other members of the National Health Council, will move its headquarters to 50 West 50th Street, into the R. C. A. Building of Radio City. The move, which will bring the Society's headquarters to a more central location, was inspired by the hope that, eventually, enough health and welfare organizations would make Radio City their headquarters to make possible a special building to house co-operatively a large proportion of such organizations having New York headquarters.

Is Eye Protection in Industry a Reality?—It has often been said that while the possibilities of eye protection are becoming generally known, they are taken seriously by only a few outstanding organizations. Industrial accident is rapidly taking its place as the leading cause of eye loss in this country, says Dr. James J. Monahan, in the December issue of the *Pennsylvania Medical Journal.* Following a discussion of a series of 300 consecutive eye injury cases, he concludes, "Early treatment and the use of goggles in specified occupations will appreciably decrease industrial blindness . . . The further aid in preventing the loss of eyes lies in the enacting of a law compelling employees to wear goggles in certain specified work. The appointment of a consultant ophthalmologist by each compensation board in controversial eye cases would render greater justice to employer and employee, prevent legal expenditures and delays, and relieve the physician of much embarrassment and criticism."

Statistics from various sources bear out this conclusion: that while knowledge of prevention of industrial eye accidents is widespread, practice is not. In the biennial report of the industrial Accident Board of the State of Idaho, the frequency of the occurrence of eye accidents is brought out; of a total of 12,717 accident claims, nearly ten per cent, or 1,238 accidents, involved the eyes. One accident resulted in permanent total disability; 49 resulted in

permanent partial disability; and 1,188 accidents were temporary in effect. The number of eye accidents was second on the list of all accidents, headed by accidents to fingers. Figuring the average cost of accident to the employer as $131.37, we have a bill of over $160,000 in medical expenses and compensation alone. But it is not only the cost of compensation that makes accidents expensive; the hidden costs, figured at four times the amount of compensation, must be added, bringing the bill for eye accidents in two years, in a state which is not highly industrialized, to $800,000.

From *Safety Standards for the Protection of the Head, Eyes, and Respiratory Organs*, a recent publication of the Secretary of the Navy Yard Division of the United States Navy, we learn that of a total of 14,912 injuries to employees of the United States Naval establishments in one calendar year (1926), 3,583—or 24 per cent —were injuries to the eyes. "Experience shows that a large majority of these eye injuries could have been prevented by the use of proper protectors," says the introduction to these standards.

Causes and Prevention of Blindness, Academy's Memorial Lecture.—The Hermann M. Biggs Memorial lecture, given under the auspices of the Committee on Public Health Relations of the New York Academy of Medicine, will be devoted this year to "The Causes and Prevention of Blindness." Dr. Arthur J. Bedell will deliver the lecture, to be given May 3, 1934, at the New York Academy of Medicine, Fifth Avenue and 103rd Street, New York City. Public health and social service workers and others interested in the prevention of blindness are invited to attend.

Color Dependence on Eye Shown by Scientist.—The old poser of the elementary physics class, "If a tree falls in the forest, and there is no one there to hear it fall, does it make a noise?" may be replaced by another, "If the eye sees blue, is it blue?" Prof. J. S. Haldane, physiologist, chemist and philosopher, delivering the inaugural address of the one hundred and ninety-seventh annual session of the Edinburgh Royal Medical Society, formulates his theory of color and light, antiquating the accepted theories of Galileo and Newton: (1) In the perception of either color or brightness, our vision as a whole is always active; there is no merely objec-

tive cause of color or brightness. (2) In this active perception we can distinguish the co-ordinated maintenance of color and complementary color, as well as brightness and darkness, in the field of vision. Illustrating his remarks, Prof. Haldane showed that he could make light, which by the laws of physics ought to be yellow, turn white, blue, green, or any other color, merely by changing the whole of the background.

Prenatal Blood Examinations in England.—To facilitate physicians' obtaining Wassermann tests of every expectant mother, Dr. H. C. Maurice-Williams, medical officer of health in Southampton, England, announces the opening of a testing bureau at the service of all physicians in the borough. He says, in the *Medical Officer* for November 18, "In view of the gross harm conveyed by parental syphilis, every patient reporting for prenatal supervision, will, in future, have a blood Wassermann carried out, whether there are symptoms leading to suspicion or not . . . If syphilis is found in any pregnant woman and treatment can be instituted at a reasonably early date, the prospect of the child being born in a healthy condition is much increased, with the result that in later years there will be less child blindness or interstitial keratitis . . ."

Workmen's Compensation Law and Industrial Board Rules of New York State.—In reviewing the material comprising the volume *Workmen's Compensation Law—State of New York—1933*, we note with interest the continuance of the use of the Snellen symbols, 20/20, 20/40, 20/60, etc., as common fractions denoting central vision remaining after accident. The American Medical Association has worked out the actual loss of vision in terms of percentages, as follows:

Snellen Notation for Distance	Percentage Loss of Vision
20/20	0.0
20/40	16.4
20/60	30.1

New York is one of the very few states that have not altered the erroneous use of the Snellen rating as common fractions.

New Movie Camera Records Eye Operations.—A motion picture camera, with special features to facilitate the recording of eye operations, is described in the December *Archives of Ophthalmology*, by H. F. Pierce. By mounting the camera upon a swinging arm, the angle of taking may be easily changed without disturbing the focus of the picture; no special lighting is required, and no valuable floor space is taken up. The remoteness of the camera from the field and the ease of manipulation permit the photographer to record the operation with a minimum of interference with the operator; the writer upholds the camera's superiority because it shows the operation as it really happened, not as a "staged" operation.

Goggles—Yesterday and Today.—"Saving Eyes in the Steel Industry," a paper read twenty years ago, at the first co-operative safety conference in Milwaukee, by W. H. Cameron, was the formal opening shot in the effort to save the eyes of workers, and the first concrete step in the reduction of blindness from industrial hazards. Men in plants, here and there, had been wearing goggles and eye screens, but the American Steel Foundries was the first organization to protect eyes on a wide scale. The history of the use of goggles and eye protective devices, by G. M. Briggs, appearing in the January issue of *National Safety News*, is the first of a series of articles on eye protection and goggles.

Electric Eye Enters Home and Office.—Although the photo-electric cell, popularly known as the electric eye, has been publicized in its rôle of guardian to the crown jewels of England and as the protector of men working near great crushing machines, its use in the home, school, office and factory as a light meter has recently been made known. The Sight Meter, light in weight and compact, uses the electric eye to measure light up to fifty foot-candles. It is easily read, and serves as a guide to lighting, for its dial carries recommended illumination standards for various activities. It has proved of special value in schools and factories; in some communities electric companies offer home lighting surveys using the Sight Meter as a guide, as part of their service to consumers; a leading hotel chain now guarantees "engineered light" in

all its guest rooms. This simple light measuring device promises to make the general public more light conscious.

Type Designing a Special Art.—To the many of us who recognize in typography only Roman and italic letters, it may come as a surprise to hear that one type designer, Frederic Goudy, the dean of American typographers, has created ninety type faces. Goudy, Kennerly, Garamond and Forum are some of his more popular forms. In an interview with *Editor and Publisher* (January 13), Mr. Goudy, describing the processes of evolving a new type face, named the five requisites of type: simplicity, dignity, legibility, beauty and style.

Thorough Vision Testing in Beverly Schools.—The Massachusetts law, requiring teachers to examine the eyes of school children, is worse than none, says Dr. Whitman C. Stickney, school physician of Beverly, in an article in the *School Physicians' Bulletin* for December. In the Beverly schools, where the need of checking each child's sight is fully realized, each child entering the first grade is given a retinoscopic examination by an ophthalmologist. In the second grade, every child wearing glasses has them checked, and those who, at their first grade examination, showed slight deviations from the normal, are rechecked. This service is paid for by the school health department.

National Conference on Handicapped Children.—Under the joint sponsorship of the National Council on the Physically Handicapped, the National Committee for Mental Hygiene and the School of Education, New York University, a national conference on the education and rehabilitation of handicapped children was held at Washington Square College on March 9 and 10. "The Education and Rehabilitation of Partially Seeing Children," a section under the auspices of the National Society for the Prevention of Blindness, was of special interest to sight-saving class teachers and educators.

Through the Eyes of Samuel Pepys.—Unimportant in his own right, frivolous by nature, Samuel Pepys has left a deeper and more striking picture of life in his day than did many of the more

serious philosophers and statesmen of his time. Beginning his famous diary in his twenty-sixth year, he recorded the events and impressions of his daily life until failing eyesight forced him to stop, ten years later. Lois Stice, who excerpts medical notes from his diary, in the December issue of *Hygiea* tells us about the eye troubles that caused Pepys to bring to a close his diary.

"From other records it is known that Pepys did not become blind and that he lived a long and busy life, dying in 1703. He was only thirty-six when he wrote this pathetic valedictory: 'And thus ends all that I doubt I shall ever be able to do with my own eyes in the keeping of my journal, I being not able to do it any longer, having done so now so long as to undo my eyes almost every time that I take a pen in my hand; and therefore resolve from this time forward to have it kept by my people in longhand and must be contented to set down no more than is fit for them and all the world to know; or if there be anything I must endeavor to keep a margin in my book open, to add here and there a note in shorthand with my own hand.

" 'And so I betake myself to that course, which is almost as much as to see myself go into my grave; for which and all the discomforts of being blind, the good God prepare me.' "

Life-Saving Illumination.—Nation-wide statistics show that while only twenty per cent of traffic is on our highways during the hours of darkness, nearly fifty per cent of the accidents happen during those hours, and more than half of the fatalities occur then. The reason lies in the inadequacy and faultiness of illumination of streets and highways; and glaring headlights make the task of seeing difficult. In a note in the December issue of *Safety Engineering*, B. B. Fortney urges the use of smaller, more concentrated headlights, which will be less blinding to the oncoming car and increase roadway illumination at a distance further ahead of the car.

Meeting of the International Association for Prevention of Blindness.—The general assembly and annual meeting of the International Association for Prevention of Blindness will be held jointly with the International Organization Against Trachoma, in

Paris, May 14, 1934. The meeting will coincide with the date of the Congress of the French Ophthalmological Society. "Prevention of Blindness in the Colonies and Tropical Countries" will be the theme of the general discussion, and the Committee on the Classification of Causes of Blindness will meet to discuss a basis for an international classification.

Industrial and School Lighting Committee Plans Year's Work.—Four main lines of research will occupy the Illuminating Engineering Society's Committee on Industrial and School Lighting through the coming year, according to a report of the Committee's recent meeting. A study of the lighting of sight-saving classrooms is now being made, with the co-operation of the National Society for the Prevention of Blindness. Other projects are an investigation in the progress of new designs, lighting trends and possible developments in the industrial lighting field; an investigation of lighting and safety as they pertain to factories and schools; and recommendations for the lighting of rooms outside school buildings that are used for studying, such as libraries, dormitories, fraternity houses, etc. The wide field of study promises interesting papers for the International Commission on Illumination, which will meet in Germany in 1935.

Eye Course at New York University.—In co-operation with the New York State Department of Social Welfare, Commission for the Blind, Prevention of Blindness Department, New York University offers a survey of eye conditions, conducted by ophthalmologists and specialists in eye physiology and anatomy. The aim is to present a comprehensive survey of eye conditions which will be of value to workers in various fields of general welfare. Social workers, school nurses, sight conservation teachers and public health nurses find the course of especial benefit.

Greater New York Safety Conference.—The Fifth Annual Greater New York Safety Conference was held at the Pennsylvania Hotel, March 6 and 7. Under the leadership of the Metropolitan Chapter of the American Society of Safety Engineers and the Engineering Section of the National Safety Council, fifty-six

organizations in Greater New York co-operated in fifteen sessions on the various phases of safety and accident prevention. While there was no session devoted exclusively to the eye, at the meeting on Safety Equipment, "Quality Requirements in Eye Protection" and "The Sight Meter" were topics of interest.

Defective Vision a Factor in Accidents.—Defective vision was the primary cause of 4 per cent of accident-proneness, and it was probably a factor in other primary causes responsible for 40 per cent of accident-proneness, according to a graphic analysis of the primary causes of accident-proneness by the Metropolitan Life Insurance Company based on an intensive study of the accident experience and personal history of 50 street car motormen in Cleveland, Ohio. Increasing attention has been given in recent years to the fact that some employees apparently are more susceptible to accidents than others, the Metropolitan's report says. In an effort to determine what steps should be taken to analyze accident susceptibility and to correct the conditions producing this susceptibility, the Metropolitan undertook this study in co-operation with the Cleveland Railway Company. The chart analyzing the results shows—in addition to 4 per cent of susceptibility due to defective vision—the following other primary causes of accident-proneness and their percentage of responsibility:

1. Failure to Recognize Potential Hazards	12 per cent
2. Faulty Judgment of Speed or Distance	12 per cent
3. Failing to Keep Attention Constant	8 per cent
4. Nervousness and Fear	6 per cent
5. Fatigability	2 per cent
Total	40 per cent

While it is impossible to arrive at any conclusion as to the precise extent to which visual defects contributed to these five causes of accident-proneness, the close association of these causes with commonly recognized symptoms of defective vision is readily apparent. Further and more extensive studies along this line in industry generally might reveal a relationship between accident-proneness and defective vision of such magnitude as to revolutionize completely present techniques of accident prevention.

National Society Notes.—The National Society is pleased to announce the addition to its Advisory Committee of Dr. Charles A. Bahn of New Orleans. Dr. Bahn is president of the Louisiana Society for the Prevention of Blindness, and is actively interested in rehabilitation.

Widespread interest in the promotion of local prevention of blindness projects is evidenced by requests for co-operation of National Society staff members. In Alabama, Mr. Lewis H. Carris, managing director, was invited to confer with ophthalmologists and health officials on steps to be taken in organizing a permanent prevention committee and program. He visited Talladega, Montgomery, Tuscaloosa and Birmingham in making a survey of available set-ups for such an organization. Miss Eleanor P. Brown, associate director, advised with the Louisiana Society for the Prevention of Blindness as to the promotion of their work. During her six weeks' stay in New Orleans, Miss Brown conferred with the faculty of Charity Hospital and with the medical social worker in the eye clinic; interviews with members of the Flint-Goodridge Hospital indicated an interest in medical social eye service in that institution. A trip to St. Louis brought Miss Brown into contact with the medical social eye work being carried on at Washington University Clinics and Allied Hospitals.

Carrying on efforts to conserve the sight of school children, Mrs. Winifred Hathaway, associate director, has visited scattered centers to talk with school authorities, civic groups, and parents and teachers on various phases of sight conservation. In Knoxville, Tennessee, she met groups of school principals, teachers, the Rotary, Kiwanis and Civilian Clubs, and the Central Council of the Parents and Teachers Association, as well as many groups of school children, to talk on the importance of good light and proper care of the eyes. In Brasstown, North Carolina, she assisted in a survey of school lighting at the John C. Campbell Folk School. Mrs. Hathaway attended lighting conferences of school authorities throughout Westchester County, New York. At the meeting of the Ophthalmological Club of Washington, D. C., Mrs. Hathaway was asked to speak of the possibilities and techniques of orthoptic training.

Through conferences with CWA authorities, Mr. Louis Resnick,

director of industrial relations, has included in CWA working regulations minimum standards for eye protection of workers. Safety posters, eye charts and the self-appraisal form for eye conservation in industry have been supplied the local authorities, and copies of the minimum standards for safety are sent to heads of CWA activities in all states of the Union. Miss Mary Emma Smith, R.N., director of nursing activities, has assisted in demonstrating methods of vision testing for the CWA in New Jersey.

Miss Smith has undertaken an eye health survey, in connection with the general school health study being made in New Mexico, under the co-operative auspices of the New Mexico Bureau of Public Health and the American Social Hygiene Association.

In connection with the contribution being made by the Society to the Committee on Statistics of the Blind, Miss C. Edith Kerby, statistician, visited the Pennsylvania Institution for the Instruction of the Blind (Overbrook), and the New York State School for the Blind (Batavia), to study records of causes of blindness in those schools. Miss Kerby also attended the conference of the American Statistical Association in Philadelphia.

Dr. Anette Phelan, staff associate, has been active in the George Peabody College for Teachers, at Nashville, Tennessee, in integrating eye health in the teachers' training course. Both Dr. Phelan and Mrs. Hathaway represented the Society at the meeting of the National Association in Cleveland, Ohio.

At the invitation of the committee on conservation of vision of the Medical Society of the State of Pennsylvania, Mr. David Resnick, director of publicity, conferred with Dr. Samuel Horton Brown, chairman of the committee, on plans for future publicity on the committee's program.

Co-operating at the Greater New York Safety Conference in New York City were Mr. Carris, who served as chairman of the dinner committee, and Mr. Louis Resnick, who organized the National Society's exhibit. Mr. Carris represented the Society at the luncheon meeting, during the regional conference of the Social Hygiene Council of New York; the subject of his talk was "Venereal Disease and Family Welfare: Physical Aspects."

At the annual meeting of the International Association for Prevention of Blindness, Mr. Carris will represent the Society;

Dr. Park Lewis, vice-president of the International Association, as well as of the Society, will also attend.

The Office of Education, United States Department of the Interior, is calling a National Conference on Fundamental Problems in the Education of Negroes, to be held about May 1. Miss Smith has been asked to serve as an adviser to the Committee on Health Education of the Conference.

Current Articles of Interest

Cycloplegia for Diagnosis, Edward Jackson, M.D., *Archives of Ophthalmology,* January, 1934, published monthly by the American Medical Association, Chicago, Ill. Diagnostic cycloplegia is practicable through the peculiar permeability of the cornea to fluids and crystalloids. It adds great certainty to diagnosis of refractive errors of the eye and should be understood and employed by everyone who is engaged in ophthalmic practice.

Treatment of Convergent Strabismus, H. Maxwell Langdon, M.D., *Pennsylvania Medical Journal,* January, 1934, published monthly by the Medical Society of the State of Pennsylvania, Harrisburg, Pa. Discussing the methods of treating the various forms of crossed eyes, the author concludes that it is a sane suggestion that every child should have his eyes examined about the time he is four, even if squint is not present. A case of strabismus should be under competent observation as soon as the condition is discovered.

The External Examination of the Eye in the Diagnosis of General Diseases; I. Vision, Position of the Eye in the Orbit and the Examination of the Eyelids, Conrad Berens, M.D., and Joshua Zuckerman, M.D., *New York State Journal of Medicine,* September 15, 1933, published monthly by the Medical Society of the State of New York, New York, N. Y. Although physicians appreciate the importance of certain eye symptoms in the diagnosis of systemic disease, the purpose of this series of papers is to point out those phases of the external examination of the eye which have proved valuable in the diagnosis of general diseases.

The Kahn Reaction in the Aqueous Humor, F. Bruce Fralick, M.D., *Archives of Ophthalmology,* December, 1933, published monthly by the American Medical Association, Chicago, Ill. Results in a series of tests upon the blood, spinal fluid and aqueous humor of 47 patients seem to confirm the hypothesis that a positive Kahn reaction in the aqueous humor may be expected

when the tissues from which that fluid is derived are syphilitic, and that a negative reaction may be expected with a nonsyphilitic involvement of those tissues.

The Evolution of Ideas Concerning Retinal Detachment Within the Last Five Years, J. Gonin, *British Journal of Ophthalmology*, December, 1933, published monthly by the British Journal of Ophthalmology, Ltd., London, England. Address, made at the presentation of the William Mackenzie Memorial Medal to the author, traces the recent history of techniques in locating and operating upon retinal tears.

Nutritional Night Blindness, Dwight L. Wilbur, M.D., and George B. Eusterman, M.D., *Journal of the American Medical Association*, February 3, 1934, published weekly by the American Medical Association, Chicago, Ill. A report of a case of nutritional night blindness shows that while absence of vitamin A is the primary cause of the condition, in this instance the diet was adequate in all respects; the bodily utilization of nutritional elements was interfered with by a gastrointestinal disturbance.

When Home and School Co-operate, Anette M. Phelan, *Child Study*, published monthly by the Child Study Association of America, Inc., New York, N. Y. The child's chances for normal development are enhanced when parents and teachers work toward that goal together; the author points out opportunities in which home and school may co-operate for protection of vision, and for the maintenance of other general health standards.

Contact Glasses, Charles A. Young, M.D., *Virginia Medical Monthly*, December, 1933, published monthly by the Medical Society of Virginia, Richmond, Va. History and description of contact glasses; method of fitting is outlined, and the special advantages and uses of contact glasses are suggested. The writer concludes: "The slight difficulty of insertion, the discomfort, especially in the beginning, and the fact that the glass can be worn from four to eight hours only at a time . . . are disadvantages which are of slight importance compared to the improved vision and comfort of the patient."

Mydriatic Glaucoma, Samuel V. Abraham, M.D., *Archives of Ophthalmology*, December, 1933, published monthly by the American Medical Association, Chicago, Ill. Acute glaucoma may be precipitated in middle-aged persons, prone to glaucoma, after the use of a mydriatic for relaxation of accommodation in refraction. The comparative rarity of this occurrence shows how little need be feared from the use of mydriatics. Among those most susceptible, the incidence is approximately 0.0217 per cent. If proper precautions are taken in all cases with suggestive signs of glaucoma, or in all cases where there is a family history of glaucoma, there is no appreciable need to fear the use of mydriatics even in persons over forty years of age.

The Responsibility of Health Departments in the Control of Syphilis, Everett C. Fox, M.D., *Texas State Journal of Medicine*, January, 1934, published monthly by the State Medical Association of Texas, Fort Worth, Texas. Although the organism causing syphilis, its serologic test, and its cure have been known to the medical profession for over twenty years, syphilis is still a leading cause of death and invalidism. The author estimates that only twenty-five per cent of the patients who receive antisyphilitic treatment receive anything like thorough treatment. The physician must go far beyond treating the disease in its early communicable stage; he must increasingly interest himself in early diagnosis, since, at this period of the disease, the chances for permanent cure are twenty-five per cent higher than after the secondary lesions have occurred; he must interest himself in prevention of the spread of the disease. If this procedure were followed, there would be a rapid decrease in the prevalence of syphilis, as has occurred in other communicable diseases, such as yellow fever, smallpox, tuberculosis and typhoid, after the institution of proper public health measures.

Book Reviews

TEXTBOOK OF OPHTHALMOLOGY. W. Stewart Duke-Elder, M.A., D.Sc. (St. And.), Ph.D. (Lond.), M.D., Ch.B., F.R.C.S. Volume I, The Development, Form and Function of the Visual Apparatus. St. Louis: The C. V. Mosby Company, 1933. 1,124 p. 1,022 ill., including 7 colored plates.

The journal of what is really a lay organization is no place for a technical review of such a book as this. It may be interesting, however, to consider it as a marker in the gradual evolution of ophthalmology as shown by its books and its journals.

The first textbooks were small affairs, for little was known about the eye beyond its external diseases. The effects of the common local infections of that day such as smallpox and gonorrhea, or the effects of diseases of the conjunctiva and cornea and iris, which could be seen, bulked very large; for the early clinicians were close observers. Much space was devoted to humors and temperaments, while vague words, like amaurosis, were used to classify conditions which caused pain or reduced vision, about which everyone theorized much and knew practically nothing.

Then came the ophthalmoscope with its revelation of the interior of the living eye, making possible the diagnosis and understanding of numberless recondite conditions, and connecting up during life the organic diseases of the eye with those of the body in general. The textbooks of that period were replete with descriptions and beautiful drawings of the newly discovered diseases of the fundus which later on became commonplace of ophthalmology.

Up to this time almost any physician could take up the study of the eye, and after a summer abroad qualify himself for practice as a specialist, for the additional knowledge was all contained in one or two small textbooks. Almost all the leading ophthalmologists had been or were at the same time general surgeons or physicians who practised ophthalmology as a side line. The invention of the ophthalmoscope changed all that, for it was much more difficult to master than our modern electric instrument, while its revelations meant nothing except to the well-trained clinician.

About the same time the fitting of glasses was taken away from the optical section of the local jewelry store, and put on a scientific basis, making necessary some study of optics with its mathematical formulae. The study of the visual fields; of muscle balance; of color vision and all the other constantly increasing details of the functional examination became more and more outside the ken of the ordinary physician or surgeon. And the time soon came when he made no pretense of knowing anything about the eye, while the ophthalmologists in the instinctive craving for association with those who "speak our language" were thrown more and more together, and developed the first medical specialty.

The books of this period began to contain whole sections about myopia, astigmatism, and the "phorias," which still constitute so large a part of the ophthalmologist's routine, and bulk so large in his library. The staining of tissues which made possible the study of disease under the microscope, and the identification of the various micro-organisms as the causes of disease shed its light on ophthalmology as it did on other parts of medicine. The more recent evolution of the slitlamp has made possible the study of the living eye with the microscope, and so put the ophthalmologist many steps in advance of his fellows.

The advent of local anesthesia and aseptic surgery, which has come within the memory of men still living, broadened tremendously the field of ophthalmic surgery and began to require special books for their elucidation and illustration.

Within the past few years the study of physiology and physiological chemistry has thrown new light on processes of life and death and enabled us to follow the physiological over into the pathological. The slow effect of foods, and toxins, and endocrines, and vitamins, the ultra-violet, and the infra-red, have been as important to ophthalmology as to the other branches of medicine. The investigations have opened up an ever widening field for research, but one which required special gifts of imagination and training. In this field the clinician is likely to make few contributions, and must be more and more a mopper-up of the art rather than a skirmisher of the science. But he must know about these advances as they occur, and must be the final judge of their practical value. From the constantly increasing mass of informa-

tion, efforts must be made at varying intervals to sift over and evaluate; to bring out textbooks which shall abandon the obsolete; condense the obsolescent; and collect from many sources the essential and the new.

Few of us have either the time or the training to follow in detail, to criticize, or to evaluate, work of this sort. Much of it is published in collateral journals we never see, and in foreign languages.

The present work is intended to do just this thing: to collect information from all possible sources, and to subject it to the criticism and the explanation of a man who has made an international reputation for his original work in experimental physiology, but who is still able to qualify as one of England's leading clinicians, and who has at the same time the gift for clarifying the complex, and investing the technical with interest.

The present volume of some 1,200 pages, with thousands of references to the original sources, is devoted to the normal eye, its embryology, its anatomy, its nutrition, its function, from the perception of light on the retina, to the interpretation of images by the brain. Only a man whose knowledge is not only vast but perfectly systematized, whose writing needs little revision and no polishing, can do this sort of thing in less than a lifetime, and if the succeeding volumes are up to the same standard, this system will be indispensable to the English-speaking ophthalmologist; it promises to be a veritable storehouse of evaluated hypotheses and of established facts.

Ellice M. Alger, M.D.

Mirrors, Prisms and Lenses. A Textbook of Geometrical Optics. James P. C. Southall. Third Edition. New York: The Macmillan Company, 1933. 806 p.

As one reviews the third edition of this textbook he becomes more and more enthusiastic about it. It certainly is a work which should be more familiar to the ophthalmologist. A cursory perusal of its pages is not enough to acquaint one with its true value; he may be disturbed because of the occasional page of formidable looking formulae, but close study of each chapter will soon convince anyone of its direct application to everyday practice. The first part of the book leads, by gradual steps, to prepare the

reader for the more elaborate aspects of optics in the later pages, so that one develops knowledge with the unfolding of the subject. The workman soon acquires an understanding of his tools which certainly helps in the application to matter-of-fact problems.

Attention to specific sections is worth while. For instance, the table of varieties of Jena glass on page 484, and Chapter XIII, on the "Optical System of the Eye and Optical Instruments," are of particular interest to the ophthalmologist, as is the ophthalmometer, discussed on pages 696–700.

The only suggestion which the reviewer can offer that might add to the scope of the work is the addition of a section dealing with the evolution of the optical systems of the ophthalmoscope, beginning with Helmholtz, leading up to those of Gullstrand, Friedenwald, and the latest form which uses the whole area of the pupil, both for the illuminating system and the observing system.

Once again the reviewer cannot speak too favorably of this work as a textbook, or at least a reference book for the ophthalmologist.

John N. Evans, M.D.

Experimental Optics. A. Frederick Collins, F.R.A.S. New York: D. Appleton and Company, 1933. 318 p. Ill.

This is a very intriguing little volume which, though apparently written for children, is certainly well worth reading not only by adults in general, but by those interested in various problems dealing with optics. To the young boy contemplating technical studies in this general subject, perusal of this book should be a great stimulus. With the exception of the references to the human eye, the descriptions and illustrations are clear and concise. The experiments are practical and well arranged, and the whole presented in a readable and interesting style. The adviser to Mr. Collins on matters referring to the biological aspects, and particularly to the parts referring to the human eye, was evidently very much behind the times in his conceptions of the subject. For instance, the visual center is referred to only as in the frontal lobe, and the illustrations of the human eye are confusing, particularly in the instance of the retina (fig. 14). The quotation from Helmholtz on page 24 is not only inaccurate but leaves a

wrong impression as to Helmholtz's actual meaning. It is, of course, difficult to present this material briefly and at the same time in language which a child can understand. Nevertheless the reviewer feels that this chapter could be greatly improved. All in all, the book is very much worth while.

JOHN N. EVANS, M.D.

LATERAL DOMINANCE AND VISUAL FUSION. Charles A. Selzer. Cambridge: Harvard University Press, 1933. 119 p.

To the average layman the term dominance seems to be self-explanatory. However, study reveals not only different types arising from heredity or training, but also varying degrees of handedness.

In chapter II the author outlines a series of tests to measure manual dominance itself, besides tests for eyedness and earedness to assist in determining the cerebral basis for handedness.

Case studies of the development of handedness in young children indicated little manual preference among children under one year of age. Watson concluded that the handedness occurring among adults was due to training alone. Baldwin and Wooley found a tendency to call forth the right hand when the child was required to bend its body in the reaching process.

As compared with a very small percentage established by tests of manual dexterity, the results of the eyedness tests, dynamometer tests and thumb-clasping tests, indicate that from one-third to one-half the population are left-dominant.

The writer's investigations of children in the Harvard Growth Study, in the Cambridge schools, and in the Laboratory revealed only one case where a change of handedness was said to have resulted in a mental disturbance.

Mirror-reading, stammering, or other mental disturbance is believed to be the result of a change of handedness only when it tended to develop ambidexterity, or equal function for the right and left motor centers of the brain. Even then, mental confusion would not be likely to result unless a lack of co-ordination existed between the two hemispheres.

Eye muscle imbalance was present in only about nine per cent of the children in the Cambridge schools, and some of these had

visual fusion. All the cases of mirror-reading and stammering had eye muscle imbalance.

Mr. Selzer also investigated the relative mental ability and speed with which the right-dominant and left-dominant read and write. I. Q.'s of four groups of from 500 to 2,500 children indicated that the average I. Q. was slightly higher for right-dominant children. The speed of reading and writing was usually greater from left to right. However, he concludes that the difference between these two groups is insignificant.

In tests for speed of reading the left-eyed group excelled the right-eyed group to such a degree that the author believes the difference is not accidental.

Experiments with the colored-lens test indicated that when one eye was more intensely illuminated than the other, its relative function was not so great. Likewise the eye that was dominant for sighting functioned more of the time than the non-dominant eye. However, if the dominant eye was more intensely illuminated than the non-dominant eye, the non-dominant eye did most of the work.

CONRAD BERENS, M.D.

GOOD EYES FOR LIFE. Olive Grace Henderson and Hugh Grant Rowell, M.D. Appleton Popular Health Series. New York: D. Appleton-Century Company, Inc., 1933. 202 p. Ill.

The foreword of this little volume says that the book is a challenge to parents and teachers; a sort of calling to account because there is a "progressive increase" in the number of school children wearing glasses.

A book purporting to deal with scientific facts—truths—would do well to present such truths, or, at least, to base its general statements on truths. Only on such a foundation is there justification for the existence of such a communication.

The mere fact that glasses are more commonly worn by the young than they were years ago is not evidence that there is a progressive increase of "eyestrain." In fact, the book is full of generalities based on insecure evidence, and this seems unfortunate in view of the great abundance of sound information which is at hand. There is the old quotation about uneducated people having

such keen sight. Of course there is little or no evidence on which to base such a notion. Because you can recognize your mother farther away than someone else can, does not mean that you have keener sight; only that you are more familiar with her peculiarities of figure, gait, etc.

Incomplete development of the eyeball is said to account for poor vision in infants. The farsighted eye is called a flattened eye after the fashion of the Victorian era. Nothing is said of the psychic aspects of vision or of what the normal vision of a child should be at different age periods.

The section on myopia is quite typical of that form of logic used; excerpts are taken from various authors to substantiate the views, but again the foundations for the statements are vague or based only on the "opinion" of someone. The experimental studies on "aniseikonia" are given two pages as if accepted and generally useful. Much space is devoted to the influence of posture on the eyes, and it is this subject with which the authors seem most familiar.

Although a combined committee of ophthalmologists and illuminating engineers could not agree on ideals of lighting, this work sets down definite recipes which one can use with confidence.

Thus, one may proceed with this work, removing the unsubstantiated and insecure, leaving here and there a statement which has some real substance in it.

While the criticisms in this review are destructive, there are features in the volume which are certainly commendable. The method of presentation in some parts of the book is forceful and clear. It holds attention and some illustrations are good. Perhaps these points alone make the work worth while, but the reviewer feels that such a fine opportunity to present truths should not have been perverted by the insertion of antiquated myths and guesses.

JOHN N. EVANS, M.D.

THE EDUCATION OF VISUALLY HANDICAPPED CHILDREN. Ralph Vickers Merry. Cambridge: Harvard University Press, 1933, 243 p. Ill.

This is a useful and a valuable book. Publication in the series, "Harvard Studies in Education," lends a certain aura of importance

to it. But it deserves recognition on its own account, for it is a sincere effort to describe historically, in a small measure and comprehensively as far as present-day conditions go, the provisions both public and private for dealing with the education of children who are blind or whose vision is sufficiently defective to render their schooling a special problem. The work has both the merits and the shortcomings of its character "as a thesis presented in partial fulfillment of the requirements for the degree of Doctor of Education," as announced in the preface. One must admire and approve the conscientious effort of the author to gather together what seems significant in the literature produced in the field of his study, the while he may perforce smile at the conscious display of erudition with its exasperating footnoteitis and at the author's enjoyment of luscious cant words and phrases. Any dissertation prepared for proving one's labors in working for a degree is bound to be hard reading, even if the reader tries with all his might to ignore reference numerals and the horrible footnote which directs him to authorities with volume and page, to *idems* and *op. cits.* galore. But to this author a vote of thanks is due because he has brought together in a summary to each chapter its substance, with nary a footnote to mar the enjoyment of finding out what it's all about.

One may read with pleasure and profit the setting forth of Dr. Merry's studies in these admirably done summaries and come to his final chapter, "Summary and Conclusions," with a fine appreciation both of the material and of the author's skill in presentation of it. Further, the general public will find it most interesting reading if taken thus, while the conscientious student will read the whole book with increasing respect for its writer.

This is a task that needed to be done. No dealing with the subject of what has been done, what is being done, and what the future should provide in the education of the blind and the partially blind in this country has been adequate hitherto. This effort to report upon a study of the whole field deserves the commendation of all interested persons. The book is recommended to administrators and teachers in schools for the blind of every character. If boards of education, boards of administration, state departments of every sort having to do with the proper schooling

of children who are visually handicapped, might read this study and be influenced in generous mood to improve conditions, a better day would be dawning for many a child now inadequately served.

A somewhat critical analysis of the volume's content and appraisal of the author's views which is here attempted is not intended to derogate from the foregoing estimate of appreciation. Dr. Merry covers practically the whole field in his consideration; some parts of the field he has explored better than others. On the subject of "Preschool and Kindergarten Training for Visually Handicapped Children" he accomplishes a sane and well-considered treatment and avoids some of the prejudiced views elsewhere expressed. His dealing with the question of training of blind children in day-school classes as compared with schooling in residential institutions is fair and sufficient for his purpose. Chapter IX on "School Achievement" is interesting and valuable, especially in analyzing aptitudes and capabilities of sightless children. On the subject of the "Evolution of Education" there is evidence of a lack of interest, for a more careful study of the beginnings of education of the blind in America would have produced a more correct picture of the development of the three pioneer schools. It is natural that any author would quote often from Samuel Gridley Howe—a great man who apparently saw the whole problem and spoke, wrote, lived his theories of how to solve it. Dr. Merry, however, passes by the immense contribution of Howe's immediate successor, Michael Anagnos, with but one reference and he gives to William Bell Wait scant attention, though he was the educator before and above the propagandist; in this volume he is apparently only the latter.

Much attention is given, naturally, to measurements of various sorts, applied to intelligence, health problems, personality, and guidance. The author is one who, probably because of his training and for other reasons, places great reliance upon mathematics and mensuration in estimating what someone calls "soul stuff." It is interesting to note, however, that throughout the book such expressions as "should be investigated" and "there is need for investigation" occur many times, leading one to wonder why the writer of this book attempts to settle some moot points; he certainly gives the impression that he is not qualified to utter various

obiter dicta, either from lack of personal knowledge or insufficient means of investigation, and because he has the habit of accepting printed statements and opinions without question of the authority of the writer of them. Further, the author seems not to sense the risk he runs through indulging in constant derogatory criticism of the failures of schools for the blind to measure up to the standards set by himself and his fellow students of psychology; some readers who have confidence still in common sense and practical experience may resent or, on the other hand, view with some degree of amused tolerance, the utterances of a tyro whose field of study of his subject is confined to printed matter and personal observations in a very limited number of residential schools.

In rebuttal, however, of the above inferences let the author himself speak; in his "Preliminary Observations" he says: "Sound opinion, founded upon many years of experience and unprejudiced observation, certainly is preferable to incomplete experimental data obtained by individuals lacking adequate training and experience. While as many reliable experimental data as possible are included in this study, sound observational and opinionative literature, also, are employed."

In dealing with the provisions for the partially blind the author has given most adequate and satisfactory treatment. Here the facts are fully given, the problems well presented, the needs convincingly set forth.

Dr. Merry's book deserves a wide reading.

EDWARD M. VAN CLEVE

Briefer Comment

SEVENTH ANNUAL REPORT OF THE GIZA MEMORIAL OPHTHALMIC LABORATORY, DEPARTMENT OF PUBLIC HEALTH, MINISTRY OF THE INTERIOR, EGYPT. Cairo: Schindler's Press, 1933. 140 p. Ill.

In this report of the scientific work carried on by the Giza Memorial Ophthalmic Laboratory for the year 1932, a section is devoted to the clinical and therapeutic research in the prevention and control of trachoma. The problem of eradication of trachoma and other eye infections is especially difficult in a country where the elementary hygienic standards are still far short of accomplishment.

A Child's Garden of Verses. Robert Louis Stevenson. A Sight-Saving Book. Cambridge: The Visagraph Institute, Inc., 1933. 117 p. Ill. by Dorothy E. Russell.

An edition of the beloved *Child's Garden of Verses*, in print suitable for use in sight-saving classes, or to be given to the child with serious vision handicap. The illustrations are clear and definite, and have a distinct appeal.

The Eye, Ear, Nose and Throat, Practical Medicine Series, 1933. E. V. L. Brown, M.D., Louis Bothman, M.D., George E. Shambaugh, M.D., Elmer W. Hagens, M.D., and George E. Shambaugh, Jr., M.D., Chicago: The Year Book Publishers, Inc., 1933. 632 p.

Devoting half its pages to the special interests of ophthalmology, this year book is an excellent guide and compendium of literature of ophthalmologic progress. While the abstracts are not all-inclusive, their selection is well considered from the standpoint of the needs of those whose readings are restricted to a few journals.

The Lucky Lady. Margaret Prescott Montague. Boston and New York: Houghton Mifflin Company, 1933. 67 p.

The glories of this "brave new world" are described by one to whom partial sight and hearing were restored through the mechanical devices of the machine age. For the person who must face a cataract operation, this book will serve as an excellent pre-operative psychological tonic.

Interpretations of Physical Education. Vol. IV, Physiological Health. Edited by Jay B. Nash. School of Education Series, New York University. New York: A. S. Barnes and Company, Inc., 1933. 308 p.

A symposium of contributions by twenty-seven specialists in the field of health education. A bibliography of selections on health rounds out the contributed material.

Recording and Reporting for Child Guidance Clinics. Mary Augusta Clark. New York: The Commonwealth Fund Division of Publications, 1930. 151 p.

This system of keeping records and preparing reports has grown out of the practical needs of the child guidance clinic. Its plan provides, however, the essentials of service bookkeeping which are applicable to the needs of other types of agencies.

Contributors to This Issue

Miss Helen J. Coffin, who is supervisor of Braille and sight-saving classes, under the division of special schools of the Cleveland Board of Education, is particularly interested in what happens after school days to sight-saving class children.

Mr. Preston S. Millar is president of the Electrical Testing Laboratories and a director of the National Society; his many professional connections and honors are too numerous to list.

Mr. Lewis H. Carris, managing director of the National Society, needs no introduction to the readers of the REVIEW.

Her wide experience as associate director of the Social Service Department of the Washington University Clinics and Allied Hospitals, in St. Louis, has given **Miss Ruth E. Lewis** authority to outline the special problems of the medical social eye worker.

Among the book reviewers: **Dr. Ellice M. Alger,** professor of ophthalmology at the New York Post Graduate Medical College; **Dr. John N. Evans,** director of research at the Brooklyn Eye and Ear Hospital; **Dr. Conrad Berens,** of the staff of the New York Eye and Ear Infirmary; and **Mr. Edward M. Van Cleve,** principal of the New York Institute for the Education of the Blind, are contributors well known to the readers of the REVIEW.

The Romance in the Movement for the Prevention of Blindness

William Campbell Posey, M.D.

GREAT causes begin with great personalities. Here is told the story of the humanitarians who brought into existence the movement for prevention of blindness

THE series of events which led to the prevention of blindness movement were so striking and unusual that they may well be designated as romantic; and those taking part in the movement were so charitable and public spirited, and exhibited such a high degree of patience and industry and such stubborn determination for the success of the object they had in view, that they may well be grouped together as partners in the prevention of blindness.

A recent article appearing in the SIGHT-SAVING REVIEW* included such a succinct account of the history of the control of ophthalmia neonatorum that I can do no better than to quote it:

"One hundred and fifty odd years ago, a German physician, Quellmaltz, pointed out a possible connection between the strange malady known as 'babies' sore eyes' and the discharge present in the birth canal of the mother. After many years, in 1808, Dr. Gibson, an Englishman, quietly repeated this observation, and added that with proper care in cleansing the maternal passages and in wiping the baby's eyes free of mucus after birth, much might be done to prevent the occurrence of this infection which so discouragingly and so frequently led to lifelong blindness. Had Gibson lived a hundred years later, he might have met with the honor of a prophet, but his colleagues of his own time paid little or no attention to his observation. They explained to the distressed

* Preventing Blindness Through Social Hygiene Co-operation, Lewis H. Carris, Vol. IV, No. 1, March, 1934, p. 29.

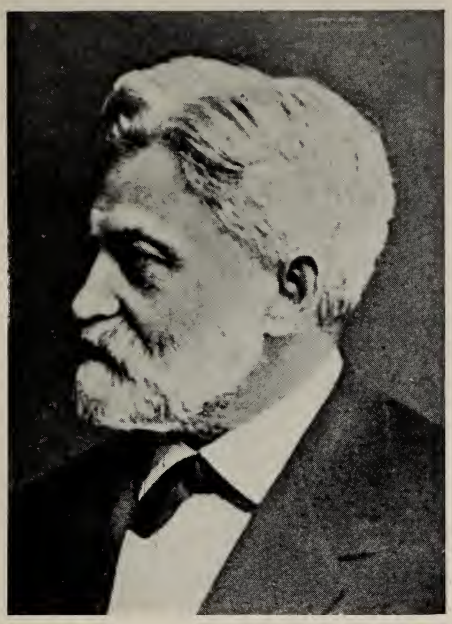
mothers of babies who had lost their sight in this way that it was caused by a peculiar constitution of the atmosphere; by an unbalanced condition of the alimentary canal; by cold drafts or the sudden change the child underwent in coming into a chilly world. So thorough was the belief in the causal rôle of cold, that the Spanish Cortes, in 1837, decreed that all babies be baptized with warm water, since the cold water commonly employed was so often followed by sore eyes and, in many cases, by blindness."

Karl Siegmund Franz Credé

There was born in Germany the early part of the past century Karl Siegmund Franz Credé. Credé was born in Berlin, and there he studied obstetrics and gynecology; in 1856 he was chosen head of the lying-in establishment in Leipzig, in which capacity he remained until 1892. As a result of years of experimental studies which he instituted to find an agent to prevent ophthalmia neonatorum, in 1884 Credé published his epochal treatise on the subject, in which he stated that "if a two per cent solution of silver nitrate is dropped into an infant's eyes directly after birth the pus germ producing ophthalmia neonatorum could be killed and the development of the disease prevented." Statistics showed that in certain classes of cases the disease developed in ten per cent of the children in which the solution was not used, and in but 0.17 per cent after the solution has been applied. This was a stupendous achievement and makes Credé one of the ranking benefactors of the human race.

The last century saw many changes in the condition of the blind. Schools for their education had been founded in Boston, New York and Philadelphia. Such wonders were wrought as the development out of blindness, deafness and dumbness into our social world of the notable Laura Bridgman and Helen Keller, who was aided by her remarkable teacher, Anne Sullivan Macy. The magnitude of the undertaking is vividly described in Mrs. Macy's recently published autobiography.

Thousands of other pupils had their lot improved as well and their lives made happier by the splendid equipment and teaching in these schools and in others in various parts of the country. Hospitals established in these three cities one hundred years ago administered to the needs of those with diseases of the eye and,



Dr. Karl Sigmund Franz Credé
1819–1892

Director in the Lying-In Hospital in Leipzig from 1856 until his death in 1892; discoverer of the prophylactic method, since known as the "Credé method," by means of which the sight of many infants has been saved.

Dr. Ernst Fuchs, 1851–1930

Professor of ophthalmology in Liége at the time he wrote his essay on "The Causes and the Prevention of Blindness," which won first prize in the competition sponsored by the London Society for the Prevention of Blindness more than fifty years ago; later renowned professor of ophthalmology in Vienna.

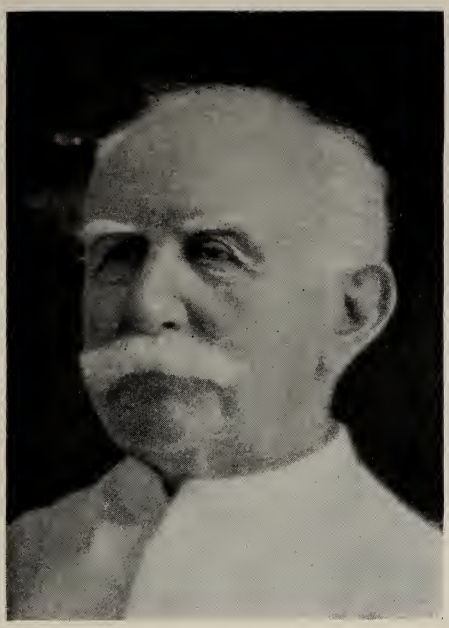
maintaining their activity during the past century, have relieved blindness in many thousands of cases.

Yes, much was done to relieve and teach the blind in the past century, but no thought was given to the prevention of blindness; no devices erected to avoid mechanical injury to the eyes, and but little thought to the dangers of contagion. Napoleon's soldiers came fresh from Egypt and many with eyes dripping with germs of trachoma were let loose to carry the infection all over Europe.

But Credé's discovery opened a new field and made the world conscious that many cases of blindness might be avoided. This was particularly so in England, where the Englishmen—Dr. M. Roth and Dr. R. E. Dudgeon—gathered a group of friends about them and formed the London Society for the Prevention of Blindness. This pioneer organization, realizing that the dangers of ophthalmia neonatorum to sight must be appreciated by laymen as well as by the medical profession, issued a number of explanatory leaflets for popular circulation. To enlarge their campaign and to make the knowledge of the dangers of ophthalmia neonatorum widespread, the Society determined upon still more comprehensive measures, and, at the Fourth International Congress for Hygiene, which met in Geneva in 1882, offered a substantial prize for the best essay on the Causes and Prevention of Blindness. All honor, then, to Drs. Roth and Dudgeon, who instituted the London Society and started this popular movement.

Dr. Ernst Fuchs

And now another great man and his clarifying work came upon the scene—Dr. Ernst Fuchs, an Austrian, but professor of ophthalmology in Liége at the time, later to become professor in Vienna and the beloved dean of ophthalmology the world over. He was an interested worker for prevention of blindness until the day of his death a few years ago, at 80 years. His treatise won the prize and was published in the *Annales d'Oculistique* in 1882. It was soon translated into English and German and other languages, and has at all times been regarded as a classic. It differentiated the various diseases causing blindness and outlined how best they might be prevented—a big subject treated by a master hand.



Dr. Lucien Howe, 1848–1928

Leader in the fight against ophthalmia neonatorum in the United States; author of laws which made the employment of the Credé method obligatory in many states; called "father of ophthalmia neonatorum legislation."

Edith and Winifred Holt

(Now Mrs. Joseph Colt Bloodgood and Mrs. Rufus G. Mather, respectively)

Lifelong workers for the blind and for prevention of blindness; responsible for the census of the blind in New York State, the report of which was instrumental in arousing local and, later, national interest in a prevention of blindness movement.

Having accomplished the feat of putting the work of Fuchs before the world, "the London Society seems to have gone into dissolution, as nothing more is heard of it," as Dr. Park Lewis stated it in the 1929 De Lamar lecture.

Dr. Lucien Howe

Another forceful character now appears upon the scene—an American, Dr. Lucien Howe, of Buffalo. Dr. Howe had become so impressed by Credé's work and Fuchs' treatise, and the pamphlets of the London Society, that he went to Egypt in 1887 to study purulent ophthalmia in its most prolific area. Returning to America, he commenced an active campaign against ophthalmia neonatorum in the United States and caused laws to be passed which entitled him to be called "the father of ophthalmia neonatorum legislation."

Howe showed in papers which he published in 1887 that about 25 per cent of all inmates in asylums for the blind were victims of ophthalmia neonatorum. It is interesting to note that the records of recent years show reductions of 75 per cent in ophthalmia neonatorum as a cause of blindness, all of which was largely effected through Dr. Howe's efforts in having proper legislation passed.

Dr. Howe was interested also in hereditary eye defects and, as president of the Eugenics Research Association, gave a masterly address on "The Control by Law of Hereditary Blindness." Before his death in 1928, at 80 years, he established the Howe Laboratory of Ophthalmology at Harvard and became its first director, the Laboratory having been endowed by Dr. Howe and his family by gifts of one million dollars.

Winifred and Edith Holt

Dr. Howe's beneficent influence in the reduction of ophthalmia neonatorum may be traced to the interest which he aroused in the New York State Medical Society and the American Ophthalmological Society, which caused them actively to work for the legal control of ophthalmia neonatorum. When the measure was presented to the Governor of the State of New York for his signature, he appointed a Commission to Investigate the Conditions of the

Dr. Park Lewis

President of the Commission to Investigate the Conditions of the Blind in New York State, the report of which was so instrumental in the establishment of the national movement for prevention of blindness; active in campaigns against ophthalmia neonatorum; vice-president of the national, as well as the international, association for the prevention of blindness; lifelong friend of the blind.

Louisa Lee Schuyler, 1837–1926

Descendant of distinguished forebears; philanthropist, humanitarian and organizer; she may be designated as the "patroness saint" of the National Society for the Prevention of Blindness, whose active interest was aroused in preventing blindness.

Blind in New York State, and to report their findings to him. It was then that two young women already interested in the blind—the Misses Winifred and Edith Holt, now Mrs. Rufus Graves Mather and Mrs. Joseph C. Bloodgood, respectively—offered their services, and the gentler sex began to play its part. These two ladies dropped all social engagements and their home was filled with statisticians and typists, and all their spare time was devoted to taking a census of the blind in New York State; in fact, Miss Edith Holt was director of the Census Bureau of the Commission. The report was finished and transmitted to the legislature April 10, 1907. This project was accomplished under the direction and initiative of another devoted pioneer in conservation work and a colleague of Dr. Lucien Howe—Dr. Park Lewis, of Buffalo, who was president of the Commission.

Dr. Park Lewis

Dr. Lewis is vice-president of the National Society and our leader in the conservation movement. His has been the voice which kept the movement alive in its infancy, and is still active in our councils. He was chairman of the Committee of New York State to Investigate the Condition of the Blind, in 1906, and supplied the legends to the illustrations which the book contained. Many of the copies of the report issued by Dr. Lewis' committee went to various state departments, where they were filed away and lost sight of. One copy fell on better soil, and it is here that another dominant figure, Miss Louisa Lee Schuyler, comes into the foreground.

Louisa Lee Schuyler

Describing Louisa Lee Schuyler's entrance into the work, Dr. Lewis stated in the De Lamar lecture:

"Returning home one winter's evening at the end of a busy day Miss Schuyler finds on her table a heavy volume filled with statistical records on the extent, the causes and the prevention of blindness. It looks stupid and uninteresting as she turns page after page of figures and she is about to lay it wearily aside, when some startling pictures meet her eye. These are groups of little children at the most endearing period of their lives. They are

growing out of babyhood and are from the kindergarten of a great state school. Their faces are beaming with sunshine, some of them are standing by the seaside playing in the sand, others with

"Tuning Up" for the Orchestra
Sunshine Home for Blind Babies, Brooklyn, N. Y.

"None of these children would have been blind if a single drop of a harmless preparation had been put in each eye on the day that he was born."

One of the illustrations which caught the attention of Louisa Lee Schuyler, arousing her indignation at such social carelessness and inspiring her to acquaint the public with the facts, thereby forming the foundation for the present National Society for the Prevention of Blindness.

simple instruments are making a little orchestra. But these sweet babies, wholly unconscious of the pathetic fate in store for them, are, every one of them, absolutely blind. The tragedy is intensified

by the legends appearing beneath the pictures. On one are the words, '*Needlessly* blind.' On another is the startling statement that 'Had the right thing been done, at the right time, and in the right way, the eyes of everyone of these little ones would have been saved.' Another picture is that of an otherwise attractive lad whose sightless eyes show the neglect of proper measures of protection at birth, and finally a group picture is shown with seventy-five of the pupils, one-third nearly of the entire school population, all of whom are either wholly or partially blind as a result of ophthalmia neonatorum, a disease the nature of which is fully understood, which might have been avoided or controlled had simple prophylactic or therapeutic measures been employed at the time that the infant came into the world.

"The dreadfulness of this prodigal, one might almost say of this criminal waste of the most precious sense that we possess, profoundly affected this remarkable woman. She was not one who expended her emotions in expression of sympathy, 'Can it be possible,' she says, 'that in a civilized country like our own, one in which the most scientific methods are supposed to be in use, babies are allowed to lose their eyes when they might have been saved?'"

Later, a luncheon conference instigated by Miss Winifred Holt was held in Miss Schuyler's home; those attending were: Dr. Lewis, Miss Winifred Holt, John M. Glenn, of the Russell Sage Foundation, and Dr. J. Clifton Edgar. Miss Schuyler asked the cost to start a movement to acquaint the public with the menace of ophthalmia neonatorum, and what measures might be taken to prevent this dire disease, so fatal to the sight. When told $3,000, she promised to raise the amount to $5,000 and to interest friends and others in the movement which grew into the National Society for the Prevention of Blindness, which has attained such remarkable growth and success.

The granddaughter of illustrious ancestors—General Philip Schuyler, the real hero of Saratoga, and Alexander Hamilton, the first Secretary of the Treasury—Miss Schuyler possessed an inheritance of leadership and intellect which undoubtedly did much to popularize the movement and endow the Society with life.

National Society for the Prevention of Blindness

The Society which she founded and conservatively conducted, appealing to the humanity of the nation, grew rapidly, giving information to the masses how sight might be conserved and blindness averted, by lectures, pamphlets, the radio, newspapers and every possible source of spreading the information about its work. Its affairs have been conducted by a group of prominent men and women, among whom are a number of leading ophthalmologists who see that the organization is kept abreast with the latest discoveries and advances in science. It is in close association with the American Medical Association—that comprehensive body of medical men—and co-operates with it in its efforts to combat blindness.

As has well been said by Van Cleve,* "Whoever learns that half of all blindness is preventable experiences some sort of emotion. It may be only a mild wonder why someone does not do something about the matter or may assume the opposite extreme of a burning indignation or divine pity, inspiring action—vigorous, persistent, effective."

As we have seen, the discovery of Credé brought realization to the world that much of blindness was needless. Needless blindness! It was this phrase which inspired those who took part in the evolution of the movement just recounted. It was this which caused Miss Schuyler to act and to have broadcast to the people of our country that blindness in many instances was needless and preventable. The purpose of this Society has been to carry on what she initiated and to insist that preventable blindness should be prevented, and that neither sluggish legislators, careless nurses, nor indifferent doctors should stand in the way of progress, or fail to make use of the measures given by Credé and others to save sight.

* Hygiene of the Eye, W. C. Posey, Philadelphia: J. B. Lippincott Co., p. 328.

A Program of Eye Health in a School System*

Mary Emma Smith, R.N.

We present a tentative outline for the guidance of school systems desiring a program of eye health

SOME time ago the National Society for the Prevention of Blindness responded to a request for definite assistance in developing an eye health program which could be fitted into the school system, by drawing up a tentative program. This program has since been submitted to health departments, school administrators, oculists, and parent-teacher associations, and modified according to the various suggestions received.

In addition to the objectives for a program of sight conservation in a school system and the activities which should be included in every school, the material contains two distinctly new features. One is the recommendation of a special eye record for every child who is referred to an oculist for an examination. This record is designed to be a part of the record of the child's physical status that is kept by the school. The other recommendation is an appraisal sheet, based in large part upon the *Standards of School Lighting*, for the use of teachers and others in studying the factors in the classroom environment that affect eye health. Both of these suggestions have evidently met a definite need, as they have been used in a number of places. The appraisal sheet has been utilized by teachers as the basis for units of work on eye hygiene, the pupils making a large part of the survey. Teachers and school nurses have found it to be of educational value to them as well as to the pupils.

* Note.—The National Society for the Prevention of Blindness, 50 West 50th Street, New York City, is prepared to give more detailed information upon all phases of the subject, and to assist school systems in working out programs of eye health.

This tentative program of eye health in a school system has been circularized, in mimeographed form, for more than a year, throughout the United States, as well as Alaska, Canada, Cuba, England, Turkey, Hawaii, Panama, and Porto Rico. Since the demand continues to be great, it is felt advisable to make it available in printed form. This does not in any way alter the tentative nature of the program. Suggestions are gratefully received.

General Objective

1. To build within the school system a program for using all of the community's facilities to the best advantage, so that everything possible may be done to conserve and promote eye health.

Specific Objectives

1. To emphasize the fact that eye health is a part of the general health program of the school.
2. To develop a co-operative relationship with all agencies in the community having a contribution to make toward a program of eye health.
3. To encourage the family to assume its responsibility for the conservation of eyesight and the correction of eye defects; but in cases needing assistance to co-operate in making available the resources in the community for remedial care.
4. To provide a way for the various workers in the school system to share their knowledge of the child's physical condition, so that the common knowledge can be used to the best advantage for the child.
5. To establish a co-operative working relationship with the ophthalmologist so that all knowledge of the child's condition may be used to enhance his efficiency.
6. To give the child the experiences which will enable him to understand the why and wherefore of eye care and to assume his share in the conservation of his sight.

Essential Activities in the School Program for Eye Health

1. Encouraging continuous observation to detect symptoms of communicable and other eye diseases.
2. Making eye inspections a part of the physical examination.
3. Securing adequate medical service for all children with visual defects.
4. Surveying the school environment in its relation to eye health, such as: natural and artificial lighting, shades, coloring of walls, and so forth.
5. Teaching eye hygiene and developing, through experience, the child's ability to appreciate the essentials of eye health and to act accordingly.
6. Securing special provisions for those handicapped with serious eye conditions.

Steps in Organizing the Sight Conservation Program

1. To enlist the co-operation of the school personnel: school administrator, teacher, school physician, school nurse, janitor, and others.
2. To develop co-operation with the official health authorities.
3. To secure the active co-operation of physicians, clinics, and hospitals.
4. To secure co-operation of welfare agencies, Parent-Teacher Associations, Red Cross, civic clubs, and others.
5. To develop a definite program of procedure co-ordinating the activities of all the groups.

Details of Procedure

1. Control of communicable eye diseases.
    a. Procedures for carrying out board of health regulations.
2. Eye inspection.
    a. Persons responsible for making tests.
    b. Instructions for testing visual acuity and muscle balance.
    c. Standards for equipment for making tests.
    d. Standard of illumination on chart.
    e. Frequency of tests.
    f. Code for recording results of tests.

3. Follow-up of those with suspected eye defects to secure continued medical supervision.
   a. Basis for referring children for medical examination.
   b. Persons responsible for carrying on follow-up program.
   c. Special record for each pupil referred for eye examination. (Suggested form on pp. 106 and 107.)
   d. Procedure for making information about eye condition continuously available to teacher, nurse, and others who will need it either in the securing of corrections or the handling of the child.
4. Survey of school environment.
   a. Appraisal form based on the revised *Standards of School Lighting.* (Suggested form beginning on the bottom of this page.)
   b. Persons responsible for making survey.
5. Health Education.
   a. Inclusion of adequate material on eye hygiene in syllabi.
   b. Persons responsible for teaching eye hygiene.
   c. Use of classroom equipment and procedure as a demonstration of good eye hygiene.
6. Provisions for pupils with serious visual handicaps.
   a. Plan for continuous medical supervision.
   b. Plan for adjustment of the educational processes and media to their needs.

* * * *

The Appraisal Form

Essentials of Schoolroom Environment Recommended for Conservation of Vision of School Children*

School_____

Classroom_____

Date_____

* Standards given here are based chiefly on the revised *Standards of School Lighting.* (Copies of the latter are distributed by the American Standards Association, the Illuminating Engineering Society, and the American Institute of Architects.)

A. Natural Lighting

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
1. Glass Area		
(a) Amount as large as structural and architectural limitations permit. (From 20% to 25% of the floor area.)	Amount 18% of the floor area, if windows are 3 ft. above floor, or 16% of the floor area, if windows are 4 ft. above floor.	_____
(b) Distance from floor to bottom of glass 4 ft.	Distance from floor to bottom of glass 3 ft.	_____
(c) Distance from floor to top of glass at least ½ width of room.	Distance from floor to top of glass plus 6 in. at least ½ width of room.	_____
(d) Distance from front of room to window 4 ft. to 8 ft., or at line of front row of desks.	Distance from front of room to window not more than 8 ft.	_____
(e) Distance from rear of room to window as little as practicable.	Distance from rear of room to window not more than line at front of last row of seats.	_____
2. Intensity		
(a) Minimum illumination on desks and blackboards from 12 to 8 foot-candles.	Minimum illumination on desks and blackboards not less than 5 foot-candles.	_____
3. Direction of Light		
(a) From left of pupils only.	From left and rear of pupils (with less than 50% coming from rear).	_____
(b) Seats turned slightly away from windows.		_____
4. Exposure		
(a) Windows facing northeast or northwest, or east or west.	Windows facing any direction except north or south.	_____

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
5. Diffusion		
(a) Shades of sufficient density so that the surface brightness will not cause glare when sun shines on them.	Translucent shades on all windows receiving light directly from sun or sky.	
(b) Shades having double rollers placed near center of window and working upward and downward, or placed at center and bottom working upward.		
(c) Shades of durable quality to prevent cracking and of ample size and with backing between rollers to prevent leakage of light.		
6. Distribution		
(a) Where light from sun or sky is obstructed, refracting glass to be used in upper parts of windows to redirect light to far side of room.		
(b) Mullions between windows narrow to prevent shadows.		
7. Absence of Glare		
(a) Workplaces so arranged that pupils do not face windows.	No seating plan, or arrangement of blackboard, which compels pupils to face windows.	
(b) Walls of adjacent buildings visible from windows finished in color light enough to reflect light but dull in finish to prevent glare.		

B. Artificial Lighting

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
1. Intensity		
(a) Minimum illumination on desks and blackboards from 12 to 8 foot-candles.	Minimum illumination on desks and blackboards not less than 5 foot-candles.	_____
2. Type of Luminaire		
(a) Indirect units, which direct all light to ceiling or semi-indirect units, directing more than half of light to ceiling. (b) Special lighting for blackboards.	Luminaires may be of indirect, semi-indirect or direct type, provided they meet the qualifications specified below.	_____
3. Distribution		
(a) Spacing between luminaires not over 1½ times the distance from desk top to luminaire (or to ceiling if using indirect type).	Spacing between luminaires limited sufficiently so that the relation of maximum to minimum illumination on work planes shall not exceed 4 to 1.	_____
(b) Equal spacing between luminaires (in either direction); distance between wall and luminaire about ½ of space between luminaires, if there is an aisle next to wall, or ⅓ of space if work place is next to wall.		_____
(c) Size and shape of enclosing globes selected to suit spacing of luminaires in order to prevent marked shadows.		_____
(d) Control apparatus so arranged that illumination in room can be equalized by turning on light in darker places only.		_____

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
4. Diffusion		
(a) Luminaire globes translucent and sufficiently dense to conceal light source.	Same.	_____
5. Absence of Glare		
(a) Luminaire globes of low surface brightness to prevent glare (under 3 foot-candles). Recommended minimum diameters of enclosing globes: 75-watt lamps—10 in. globe 100-watt lamps—12 in. globe 150-watt lamps—14 in. globe 200-watt lamps—16 in. globe 300-watt lamps—18 in. globe	Luminaire globes of surface brightness not to exceed 3 foot-candles per square inch.	_____
(b) Luminaires placed well above line of vision of pupils.	Same.	_____
(c) Luminaires placed only against light background.	Same.	_____
6. Maintenance		
(a) Selection of light units which can be easily cleaned.	Same.	_____
(b) Regular thorough cleaning of luminaires sufficient to prevent reduction in intensity of illumination.	Regular thorough cleaning of luminaires at least once a month for indirect or once in three months for direct units, more often if under dusty conditions.	_____
(c) Regular inspection of lighting to include testing of intensity and replacement of bulbs, etc., sufficient to maintain illumination standards set.	Regular inspection of lighting to include testing of intensity and replacement of bulbs, etc., at three-month intervals.	_____

C. Classroom Decorations, Furnishings and Equipment

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
1. Color		
(a) Ceiling very light in color and having an 80% reflection value, preferably white, ivory, or light cream.	Ceiling light in color and having a reflection value of not less than 70% with direct lighting or 75% with indirect.	_____
(b) Upper walls having a reflection value of 50%. Suitable colors are cream, light green, light gray, light buff, and very light blue.	Same.	_____
(c) Dark colors may be used below level of window sills.	Same.	_____
2. Finish		
(a) Only dull finishes on walls, ceilings, blackboards, woodwork, furniture, etc. No glass or shiny polished surfaces.		_____
(b) Unglazed paper in books, notebooks, etc.		_____
3. Size		
(a) Seats adjustable for height and adjusted to present users.		_____
(b) Type in books large enough to be easily read by pupils. (See suggestions on approximate size of type by age.)		_____
(c) Charts, maps, etc., with minimum of fine detail.		_____
(d) Writing materials (chalk, pencils, ink, etc.) selected to produce large, distinct writing.		_____

Recommended Good Practice	Minimum Requirement	Actual Condition in Classroom
4. Arrangements and Adjustments		
(a) Desk tops adjustable to lift to an angle.		_____
(b) Work places selected in relation to intensity, direction, etc., of light.		_____
(c) Shades, lights, etc., adjusted to meet changing conditions during the day.		_____
(d) Daily program planned to avoid difficult or prolonged eye work (especially for child with defect).		_____
(e) Daylight unobstructed by window curtains, pictures pasted on panes, books or plants on window sills.		_____
(f) Cleanliness of blackboards, books, illustrative materials, etc., to insure legibility.		_____
(g) Blackboard writing, posters, etc., placed near eye level of pupils.		_____

Glossary

1. **Intensity** of light is its amount or strength. It is measured in foot-candles.
2. **Foot-candle** is the unit of measurement of intensity of light. The amount of light produced on a surface by a single candle (of prescribed standard size) which is situated at a distance of one foot from that surface, is one foot-candle.
3. A **foot-candle meter** is an instrument for measuring the intensity of light.

4. The **Illuminometer** is a new type of foot-candle meter for measuring the intensity of light. It works on the principle of the so-called "electric eye." That is, it contains a light-sensitive plate by means of which light is turned into electricity, which in turn moves the pointer on a dial marked off into foot-candle units.

   Weston Electrical Instrument Corporation, Newark, New Jersey. Model 614—list price $50. Schools and health departments are entitled to an appreciable discount.

   Where school and health departments do not have foot-candle meters available for use of teachers, local electric companies may be willing to lend this equipment.

5. **Diffused light** is light which is scattered in all directions as it comes from the light source or sources.

6. **Surface brightness** is the measure of the relation which the intensity of light from a surface bears to the size of that surface.

7. A **translucent** material is one which diffuses light as it passes through, so that objects may not be seen distinctly through the material.

8. **Refracting glass** has a ridged, rippled, or rough surface (on one or both sides) which bends (refracts) the rays of light as they pass through.

9. **Glare** is any light or brightness within the field of vision which is of such character as to cause discomfort, annoyance, interference with vision or eye fatigue.

10. **Mullions** are the supporting wall or window-frame spaces between glass areas.

11. A **lamp** is any source of artificial light (as an electric bulb, a gas flame).

12. A **globe** is a covering of clear or diffusing material used to protect a lamp or diffuse its light. Its size, shape, and material determines the distribution and diffusion of the light.

13. A **luminaire** is a complete lighting unit, including the light source, enclosing globe and necessary fixtures.

14. **Distribution** is the term used to describe the relative intensity of light at various places in an area (as a room).

15. A **watt** is the unit of measurement of the strength of an electric current. The wattage of a lamp (bulb) indicates the amount of current it requires, not the amount of light produced by it.

16. **Reflection value** (or reflection factor) is the proportion of light received by a surface which it in turn reflects. Color and maintenance affect the reflection value. The effect of color upon reflection is shown in the following figures which give the results of actual tests:

Color	*Percentage of Light Reflected*
White—new	82 to 89 per cent
White—old	75 to 85 " "
Cream	62 to 80 " "
Buff	49 to 66 " "
Ivory	73 to 78 " "
Gray	17 to 63 " "
Light green	48 to 75 " "
Dark green	11 to 25 " "
Light blue	34 to 61 " "
Pink	36 to 72 " "
Dark red	13 to 30 " "
Yellow	61 to 75 " "
Dark tan	30 to 46 " "
Natural wood brown stain	17 to 29 " "
Light wood varnish	42 to 49 " "

17. The **size of type** used in books is one of the chief measures of their legibility. Generally speaking, the larger the type, the greater the distance at which it may be read and the more easily it may be read. Young children, being farsighted, require large type. The following approximate sizes are recommended:

Age of reader	*Size of Type*	
	*Point type**	*Approx. height of capitals (incl. space between)*
Under 7 years	24	1/3 inch
7–8 years	18	1/4 inch
8–9 years	14	1/5 inch
9–12 years	12	1/6 inch
Over 12 years	10 or 11	1/7 inch

* A *point* is the printers' measure of the size of a letter. There are 72 points to the inch.

Eye Record

(To be used in connection with the School Health Record)

Name Sex

Address Date of birth

Parent or Guardian Address

Recommended for complete eye examination by Title

Secured written permission of parent for complete eye examination and use of drops

School Inspection

Date of Inspection School Grade

	Right eye	Left eye
Visual acuity—without glasses		
—with glasses (if worn)		
Lids		
Conjunctiva		
Cornea		
Iris & pupils		
Light reaction		
Obvious defect of muscles		

Symptoms noted by teacher or nurse: headaches granular lids

styes tearing blurring burning

itching secretion unusual posture while using eyes

Remarks (significant defects or illnesses of child or family, retardation, etc.)

Eye Record (continued)

Eye Physician's Examination

	Right eye	Left eye
Visual acuity—without glasses		
—with glasses recommended		
Diagnosis—Refractive error		
Glasses ordered (give Rx)		
Muscle balance, near		
far		
Ocular disease		

Recommendations—

Glasses to be worn: constantly for close work only

Amount of eye work permissible: unlimited

limited (explain restrictions)

Should child be assigned to sight-saving class if such exists

Home treatment advised (specify)

Re-examination of eyes advisable (give approximate date)

Further diagnostic examination advisable (state nature of examination)

Examined by

(Note: Use space below for specific information on re-examinations, follow-up, etc.)

Trachoma in the United States*

C. E. Rice, M.D.

A downward trend in the prevalence of trachoma is reported for the United States; the disease has become especially rare in our large cities

Endemic Trachoma Area

This report deals with the trachoma problem of the native white population in the endemic trachoma belt of the United States. Trachoma in our large cities is today a rather rare disease. This is in apparent contrast to trachoma as found in many European countries. Figures emanating from ministries of public health in Europe frequently are findings from surveys in individual cities.

The endemic trachoma area of the native born white inhabitants of the United States of America stretches through the central portion of the country from the Allegheny Mountains to the eastern borders of Kansas and Oklahoma. It takes in most of eastern Kentucky, and part of adjoining West Virginia, eastern and central Tennessee, a portion of southern Illinois, all the southern half of Missouri and the northern half of Arkansas and the northeast corner of Oklahoma. The trachoma found in Missouri and Arkansas today originated from individuals with trachoma who came into these states from Tennessee and Kentucky in the early days of pioneer development.

The endemic trachoma area comprises, with few exceptions, the roughest and most mountainous terrain in the states involved. Until very recently, access to much of this area could be had only by horseback or on foot. Motor roads are gradually penetrating

* Discussed at meeting of the International Association for Prevention of Blindness and the International Organization for the Control of Trachoma, Paris, France, May 14, 1934.

this territory and with such development the control of trachoma will be much easier.

This endemic trachoma area comprises approximately 104,000 square miles (260,000 square kilometers), with a population in 1915 of 3,940,000. This area is more than three times the size of Ireland. From 1915 to 1930 the population in this area had increased to 4,220,000. The trachoma belt in Missouri, Arkansas and Illinois in this time decreased in population about 5 per cent while the rest, comprising parts of West Virginia, Tennessee, Kentucky and Oklahoma, increased 15 per cent. This fact illustrates that there has been much migrating from certain trachoma regions and into others. The increase in Kentucky, West Virginia and Tennessee has been due to the opening of great coal mines and increased industrial development in general.

Prevalence of Trachoma in Endemic Area

Considering the trachoma area as a whole, the estimated prevalence of trachoma in 1915 was approximately 14 per thousand population. In some well-defined regions within this area, as in eastern Kentucky, the estimated prevalence reached 17 in an area of 9,000 square miles. In one county of this Kentucky area the prevalence was actually found to be 90 per thousand population. In southern Illinois, in an area comprising 13 counties—5,000 square miles (12,500 square kilometers)—the prevalence was 4. In those regions that lost population, the percentage of drop in the prevalence of trachoma has been least, while in the areas that have increased in population from industrialization and development of coal mining there has been the highest percentage of drop in trachoma prevalence.

History of Trachoma Interest

In 1911, Dr. J. A. Stucky, an ophthalmologist of Lexington, Kentucky, read before the American Academy of Ophthalmology what was thought at the time to be a very alarming and exaggerated report concerning the prevalence of trachoma in eastern Kentucky. Following that report, and as a result of it, the American Medical Association and the Kentucky State Board of Health induced the United States Public Health Service to detail an

officer to look into the situation. Surgeon John McMullen made a trachoma survey in eastern Kentucky in 1912 and his report confirmed all that had been said by Dr. Stucky concerning the seriousness of trachoma in that state. It seems that Dr. Stucky was preceded by Dr. William Cheathem, an ophthalmologist of Louisville, who stated, in a medical meeting about eleven years before Dr. Stucky made his report, that 47 per cent of the inmates of the Kentucky School for the Blind were blind from trachoma. It is interesting to note that for the past several years the number of trachoma blind in this school has not been above 7 per cent.

Plan of Trachoma Control

In 1913, Dr. John McMullen started his plan of trachoma control that has been modified but little in the succeeding 20 years. This plan was based on the establishment of small temporary field hospitals at strategic points in the endemic area. The capacity of these hospitals ranged from 20 to 35 beds. The professional personnel connected with each hospital consisted of one eye physician and two to four nurses.

One or two nurses worked out of each hospital as field nurses. The importance of these field nurses has always been emphasized by those connected with this work. During the first 14 years' work in Kentucky, they covered a compact group of 27 counties over a mountainous terrain of 18,000 square miles (45,000 square kilometers) by horseback, mule-back and on foot. The common trail in those days was the bed of a shallow stream. The nurse's duty was to visit each individual home, examine the members of each family, get acquainted with them, win their confidence, revisit if necessary and get those individuals who showed pathology suspicious of trachoma to visit the nearest field hospital or attend a nearby field clinic. The field clinics were held at frequent intervals, often weekly at a certain point, for a month or more. The field clinics were held in churches, homes, courthouses, etc., by the eye physician in charge of the nearest field hospital. These field clinics were of both diagnostic and therapeutic nature. The suspicious cases seen by the nurses were usually examined and their eye condition diagnosed in these clinics, and many treatments were given here. Much educational work was accomplished by

the field nurse and the physician at the field clinics in matters pertaining to personal hygiene. The physician in charge of the field hospitals thus had three main duties: first, to work in the hospital; second, to supervise the work of the field nurses, and third, to hold the field clinics in his territory.

The more severe cases of trachoma were hospitalized while the milder cases were treated at field clinics by the eye physician who

Rude Method of Travel Necessary in Rural Districts

taught the patients how to treat themselves at home. Many operative field clinics have been held. By means of these operative clinics the usefulness of the hospitals has been augmented. The field nurses would assemble in a church or other public building a group of trachoma sufferers who needed special care or some operative procedure, as grattage, entropion correction, cantho-plasty, etc. Portable cots were set up for the patients and local women's clubs provided and served food to the patients. An operating room was improvised and the patients taken care of as each individual case required. Each operative clinic was planned

so that the patients might be kept under semi-hospital care for one week at least. These operative clinics can be held only during the warmer seasons in this country.

Main Points in Control Plan

The three main points in the general program have been thought of as follows:

1. Finding the individuals suffering from trachoma. This is not easy because of the primitive means of travel and isolated homesteads of many of these sufferers.
2. Getting the infected individuals under treatment. Often the families are suspicious of the motive of both nurse and doctor and several visits may be necessary before the parents will accept treatment or allow their children to receive care.
3. Educating the individual and his family in matters pertaining to eye hygiene especially when one or more members of a family have trachoma.

The work has not been based on school examinations or using the school as a place of treatment. It is our experience with trachoma in this country, that a school survey alone will never give a true index of the prevalence of trachoma in any territory. The trachoma child tends to quit school. The work is based on the individual homes which must be visited and every member examined by the field nurse—adults as well as children, grandparents as well as parents. It is surprising, the number of reports seen concerning trachoma surveys and trachoma work from different countries that deal apparently with children only. It would seem from many such reports that trachoma does not concern the adult.

This point of making the home rather than the school the unit in trachoma work is important enough to give the following illustration. In a trachoma survey made in a compact area in Tennessee, 30,277 children were examined in schools, and of this number only 213 were found to have trachoma. In the same territory, of 2,757 people examined in field clinics and in homes, 660 were found to have trachoma.

Co-operative Trachoma Projects

At present the trachoma work of the United States Public Health Service in co-operation with the respective State Health Departments is being carried on in the states of Missouri, Kentucky and Tennessee. The plan of work is as outlined above. In Missouri the work is centered at Rolla, a small city in the Ozark highlands. The work in this state has been going on about 11 years. In Kentucky the work is carried on from the city of Richmond at the western edge of the mountainous district of that state. Here the trachoma work has been in existence 19 years. In Tennessee the work is centered in the town of Gainesboro, a mountain town about 20 miles from the nearest railroad. Several areas have been covered in this state in the past 18 years.

Diagnosis of Trachoma

The diagnosis of trachoma has often led to heated disputes because of failure of authorities to agree on the clinical manifestations necessary to establish this disease as a clinical entity. The most extensively used system of classification in trachoma is based almost entirely on the pathological picture seen in the palpebral conjunctiva. The manifestations of trachoma in the lids are the least important part of the disease. The corneal manifestations are the most important and may even be primary. In any case, the corneal pathology makes its appearance early, usually within the first three months of the disease. Those doing research on trachoma etiology should confine themselves to cases showing corneal pathology, otherwise the question can be justly asked: "Was the condition really trachoma?"

It has been our practice not to be too hasty in making a diagnosis of trachoma early in the disease. We try to emphasize that there is no need of hurry. Many lid conditions are seen which we record as suspected trachoma. Such are kept under observation two or three months under a mild astringent, as 0.25 per cent zinc sulphate. In the presence of a thickened and inflamed mucous membrane with papillary or granular activity, together with manifest pannus or beginning pannus with cellular infiltration in the cornea, we feel more sure of our ground. In older cases we often see a quiescent or cicatricial lid with an active cornea.

Trachoma Therapy*

We do not believe that trachoma therapy has advanced much in the past fifty years. In the early case a grattage is usually done under local anesthesia and suitable treatment started. Without doubt, the elimination of any focus of infection in tonsils, teeth or sinuses helps to hasten the arrest of the disease. We have not found that balanced diets reinforced by vitamins have any direct benefit on the course of the disease. Diathermy and ultra-violet rays have been tried out with little success.

When all is said and done, almost any drug or chemical that is not too irritating to the cornea is probably beneficial in trachoma, if applied by swabbing or rubbing the conjunctiva.

We have ceased to use the word "cured" as applied to trachoma. It is impossible to say at the present time when a case is cured, if ever. The disease can be arrested as in tuberculosis or leprosy. This arresting is brought about by the formation of scar tissue in the sub-conjunctiva. Relapses are frequent. At least twenty-five per cent of our cases relapse two or more times.

Epidemiological Observations

It is our observation that trachoma is a family disease, meaning that it is spread largely within family groups. Very little trachoma is spread through the schools in this country. When we find a child with trachoma we are almost sure to find parents or grandparents, or both, with active trachoma. This point bears emphasizing that trachoma is found in all age groups and if the lid pathology found in any region is confined largely to children, the probabilities are that the condition is not trachoma.

In field clinics we have been able to confirm MacCallan's observations made many years ago that a big percentage of trachoma becomes spontaneously arrested without damage to vision and without ever being treated. We are able to pick up the earmarks of past trachoma quite easily in these cases that come into field clinics out of curiosity—just to have their eyes examined though their eyes are now apparently normal.

During the time that the Public Health Service has been

* *Editor's Note:* In an effort to preserve the non-technical nature of the REVIEW, we are presenting here only an extract from the original of this section.

co-operating in this trachoma work, 16 professional wrestlers have been hospitalized. And we know of many other such professionals who have trachoma. In several we have been able to get a definite history of origin of the disease following a certain match. In one case the manager of the wrestler used mercurochrome in the athlete's eyes both before and after the match. In spite of such precaution the wrestler contracted the disease.

We have seen monocular trachoma in quite a few cases. It certainly occurs and may remain monocular several years without any effort on the part of the patient to prevent spread to the other

Typical U. S. Public Health Nurse in Trachoma Areas

eye. Usually, however, the other eye is involved within three weeks after the disease starts in the first eye.

This fact of monocular trachoma seems hard to reconcile with the idea that trachoma is a communicable disease. Some of these monocular cases have been studied under the corneal microscope to be sure there was not some vestige of past trachoma in the apparently normal eye. In most instances, when an individual who appears to have monocular trachoma is studied under a corneal microscope, it is discovered that the good eye has suffered from trachoma in the past and the condition has become arrested in that eye.

In most areas of the trachoma belt, body parasites are seldom seen in the trachomatous individuals. This applies to both external and internal parasites.

It is very exceptional to find one of these native born trachoma patients with a positive Wassermann.

A trachoma patient with an accompanying gonococcus infection of the conjunctiva has not been seen in this endemic area. The complicated trachoma that Wilson speaks of in Egypt is seldom seen in this area and yet the trachoma produces much blindness and near-blindness here. We believe it more logical to think of the corneal lesions as trachoma of the cornea.

Also the trachoma inclusion bodies are found in a high percentage of these cases, though we seldom have complicated trachoma as defined by Wilson.

We have never had an accidental trachoma infection in doctors, nurses or attendants connected with this work. For obvious reasons, deliberate human inoculation has never been attempted.

Damage Done by Trachoma Here

Something should be said concerning the damage to vision by trachoma in this area. Of 8,444 cases seen in the Kentucky area, 463 eyes had become entirely blind and 840 individuals had vision reduced to 20/200 or less from corneal damage. Out of 15,450 cases seen in Missouri, Tennessee and Kentucky, there were 1,835 individuals who had entropion corrections. About 12 per cent of the cases seen in Missouri have vision reduced to 20/200 or less in both eyes by trachoma of the cornea. Of those who have vision so reduced, 3 per cent are under 30 years of age.

Downward Trend in Trachoma Prevalence

The estimated trachoma prevalence for the whole white trachoma area in the United States of America in 1915 was 14 per thousand for a population of 3,940,000. The estimated prevalence in 1930 in the same area was 10 per thousand for a population of 4,220,000. In 1915 the eastern Kentucky region showed a prevalence of 17, which by 1930 had dropped to 7. The trachoma belt in Missouri in 1923 had an estimated prevalence of 28 for a population of 475,000. By 1930 this had dropped to 22 per thousand in a population of 550,000.

The number of trachoma blind in Missouri has not become less. However, this was not expected so soon and a generation of constant effort will probably be necessary before there is a lessening in this number.

With our present lack of knowledge of trachoma it is probable that educational efforts in prevention of the disease accomplishes more than does treatment of the disease in the individual. However, treatment will arrest the disease and prevent much suffering and blindness for individuals.

Whether the downward trend in trachoma prevalence is due to past efforts in eradicating the disease is not known. It is possible this trend may be due to other factors.

Activity Program in Sight-Saving Classes

Harriet E. Yallowley

ALL problems of interest to the progressive grade teacher are important to the sight-saving class teacher

THE sight-saving class teacher is essentially an experienced teacher charged with the responsibility of making educational opportunities available to a special group. The accepted aim is to approximate as closely as possible the work of the regular grade, adapting and modifying it to conform to the limitations imposed by the eye difficulty.

The trend of modern education is toward the so-called "progressive methods." Public schools are increasingly reaching out for the new order of things and, as is inevitable, interpretations and administrations vary, with a certain amount of confusion resulting. The thinking teacher asks herself, "In what way is the old order of things to be forsaken? Wherein lies the difference?" To answer this question a recall of our old aims and an investigation of the new objectives seem to be a good starting place.

Under the traditional type of instruction the chief concern was the transmitting of a large body of facts—the passing along of the accumulated knowledge of the race. Its success largely depended upon the passive receptivity of the child, his conformity to mass action and his ability to develop academic skill. The restriction of subject matter to narrow classifications, unrelated to each other and to the child, has been a dominant characteristic. While the good teacher of all time has independently concerned herself with the whole development of her pupils, the accepted standard was the purely academic.

The principles of the modern school are to be interpreted not so much as an abolishing of the old objectives and the substituting of new ones, but as a rearrangement of emphasis based on a new

conception of values. If the purpose of education is to promote the all around growth of the child, we must include physical, mental, moral, emotional and social development among our aims. The interdependence of all these phases of life is the basic principle upon which the new type of school is organized. Thus we see that the academic aim is not eliminated, but is shifted from its previous position of first place.

The objectives may be arranged in the following order:

1. Development and Preservation of Health, both physical and mental. In the past this has often had the least consideration bestowed upon it.

2. Social Development. The harmonious development of the individual as a member of a social group.

3. Individual Development. The opportunity to express himself, to select, experiment, judge and measure his own results in terms of his own growth. This implies the breaking of the traditional lock-step.

4. An Academic Attainment in a broad useful form. This includes all the skills and knowledges necessary for the mastery of fundamentals and tool subjects.

The sight-saving class teacher has from the first recognized this arrangement of objectives. The academic accomplishments of her pupils have always been subordinated to their physical welfare. Thus she can have no quarrel with the new régime, as it involves no change of aims, but rather signifies an extension to the regular grades of the sight-saving class teacher's guiding principles.

The work of the child psychologists has probably been the most powerful factor that has led to a changed curriculum. The study of the learning process, child interests and tendencies, has developed the philosophy of learning by doing, which is the core of the activity program. This is not rightfully entitled to be called a new principle, but rather it is a reversion to the earliest learning among primitive people. The informal acquisition of knowledge based on personal experience is the foundation upon which modern civilization has builded. To use these natural tendencies and interests of children as a starting point and so directing and guiding that learning occurs not only as a by-product, but consciously in response to a felt need, is the task of the teacher.

That all learning must be based on first-hand experience, that there is no place for drill, that textbook and formal instruction do not belong in a modern school, are fallacies. All these must be retained, but they must be presented when needed and in such a manner that they will function usefully.

The progressive method is an endeavor to follow the path indicated by the new philosophy in that it employs the native tendencies of children instead of expending effort along conflicting lines as in the old formal type of school. What are some of these tendencies? The desire for movement, for speech, for companionship, for handling things and for finding out the "why" of whatever exists. These tendencies manifest themselves in a ceaseless activity. To work in accord with child nature, the activity program seems to be the logical method, and the duty of the teacher is to provide experience which will satisfy and at the same time arouse the curiosity which leads to further investigation and a transition to formal learning.

In what way does the activity curriculum disrupt the formal program? First, since formal instruction is given only as needed, no definite time schedule can be adhered to. Spelling, for instance, may come at any time of the day when the need arises or it may not be given at all. Furthermore, if activity predominates, the periods must be longer than the traditional time allotment. If creative expression is to be encouraged, some time must be set apart for free work. The program must vary from day to day and cannot be made out far in advance

What bearing has all this upon the work of the sight-saving class teacher? Despite her difficulties in the past it was possible to know the exact time at which each child should be at a given place and the precise fact for which he was to be held responsible, or the skill which he was to develop. Her progress was definite and she could plan accordingly. A restricted course of study served as a check and guide for her work. It was possible for her to obtain from the regular classroom teacher the clear-cut assignments for the day—an arithmetic lesson, a list of spelling words, a specific topic in history or geography. Under the new system, integration of subjects, flexibility of program, individual rate of progress, all interfere with the classroom teacher's ability to give to the sight-saving class teacher the help she has been able to

supply in the past. The sight-saving class teacher's problem, therefore, undoubtedly becomes more difficult and puzzling. What to prepare and when to have it ready is a problem.

The co-operation of the regular classroom teacher is more than ever essential. The sight-saving class teacher must acquaint herself with the unit of work or project being developed in the class. She must know the aims and problems which arise during the development of the project and the activities which are carried on, together with the desired outcome. She should endeavor to have the sight-saving class child participate in as many of the class activities as his particular handicap permits. If group work is carried on it is desirable that he be included in a group where his contribution will be possible and valuable. It is the duty of the sight-saving class teacher to have him make an individual contribution of value to the class. In this way he may have the feeling that he is a valuable contributing member of the organization. Furthermore, this offers an opportunity for gaining the appreciation and co-operation of the classroom teacher, to whom the child, formerly undesired, may now appear as an asset. The greatest problem is gaining the assistance of the classroom teacher, always remembering that her work, too, is not so simple as formerly, and aid is not so easily given. Much indirect information about the activities may be gained by questioning the child himself.

The classroom teacher cannot be expected to remember the sight-saving class child and send for him when work in which he can share is being given. Probably the only solution of this difficulty is to make some pupil in the regular class responsible for summoning the sight-saving class child. There is no reason why both the assisting child and the sight-saving class child cannot be trained in discrimination and thus be able to judge when the sight-saving class child's presence is desirable. The new situation calls for greater tact, more resourcefulness, more control, wider general knowledge and greater use of handwork then ever before.

The sight-saving class teacher will find it profitable to make a study of the many recent publications devoted to the new type of school. Visits to progressive classrooms of normally seeing children and observations of the methods in actual practice are

suggested helps. A day spent in the regular grades can well furnish ideas capable of being remodeled to sight-saving class standards. In addition, the sight-saving class teacher acquires a renewed image of the environment to which she must send her pupils and of the accomplishment of normally seeing children with whom they will be associated.

All the advantages which are claimed for the normally seeing child are equally applicable to the sight-saving class child. However, some possible disadvantages may be mentioned. It may be contended that his association with the normally seeing children is restricted by the new program. It is true that most of the individual work must be done under the supervision of the sight-saving class teacher and his stay in the regular classroom is somewhat curtailed. On the other hand, his more active participation when he does return to the classroom, with the results of his individual effort, more than compensate for the abbreviated period in the room. It is hardly likely that he will feel cut off from the normally seeing group if, as previously stated, the additional time spent in the sight-saving class is devoted to some phase of the general project of his grade. It is quite likely that the difficulty of social contact may not arise at all, but, since oral expression is to be stressed, he will find himself increasingly a part of the group. Much depends upon the joint action of his teachers.

There are as yet comparatively few schools in which a progressive program of wide scope is being used. In most systems a modified form only is followed. One prevalent scheme is the setting aside of a definite period of the day, varying from one to two hours, in which the activity work is carried on. The remainder of the day is more or less devoted to formal instruction with as much correlation as possible. This seems to be the wisest plan at present, so that both children and teachers become gradually familiar with the method. Thus they gain greater capacity for working in accord with the principles involved. The gradual transition from formality to informality thwarts the possibility of too wide a swing of the pendulum and the discarding of all academic standards. The idea of freedom must still be interpreted as freedom within limits.

The sight-saving class teacher in this type of school will have

less difficulty in adjusting her schedule while at the same time she is offered all the opportunities of the activity program in a workable form.

In addition to the regular classroom activity the sight-saving class children should at all times be carrying on some project belonging exclusively to them. The activity, or project, most worth while will be that which is an outgrowth of some object, situation, incident, experience, or phase of the environment in which the children show a spontaneous interest. If it promises results of value and is capable of sustained interest for at least a month, the wise teacher develops this child-initiated project. It is always possible for the resourceful teacher to set the stage and arouse interest if spontaneous leads are lacking. The activity should appeal to a majority of the group, and while difficult enough to offer a challenge to the more advanced should be understandable to all. It should permit of many different types of activities being carried on, preferably one in which the chief sources of information are personal experiences—as the excursion or the experiment—offering a minimum of necessity for close eye work. The exhibit and the sand table are the most practical media in sight-saving classes.

Among other worth-while activities the following are desirable: clubs, dramatizations and plays, puppet shows, pets, aquaria, plants, diaries, business of various kinds, post offices, broadcasting programs, orchestras specially arranged to meet the needs for conserving sight, routine schoolroom chores, museum collections.

The problem of the sight-saving class teacher in the development of her project is somewhat different from that of the regular classroom teacher. In the regular grade an important aim is the ability to find facts rather than to accumulate them. The child is therefore progressively directed to books as a source of information and he is encouraged to locate, select, organize and present the results of his findings to the group. This involves considerable silent reading and so is not for the sight-saving class child, for whom this phase must, of course, be limited to the short article or to the reading by the sight-saving class teacher.

With respect to handwork, the sight-saving class teacher again cannot accept all types available for the normally seeing child.

Here the general rule that anything requiring close eye work must be eliminated largely determines the choice. Among the desirable types may be mentioned: Paper—torn or cut, and mounted to make the poster, frieze, picture book or stage setting, etc.; painting with long-handled brushes; paper construction for use on sand table; work with clay—modeling; work with light woods—construction of toys, boats, airplanes, musical instruments and simple furniture.

The sight-saving class teacher, in carrying out an activity program, will meet with fewer difficulties of a purely mechanical aspect than will the regular classroom teacher. Her group is smaller, her room better equipped, her curriculum requirements are less strict than those of the ordinary teacher. The sight-saving class seems to offer a suitable laboratory for experimenting with progressive methods.

Editorial

Aniseikonia

RECENTLY, the newspapers introduced the layman to a new medical term, "aniseikonia"—a defect of the eyes in which an object appears a different size in each eye. In experimental laboratories at Dartmouth College, Ames, Gliddon and Ogle have developed devices which seem to promise relief to the discomfort and disability of a certain percentage of those who have not been helped by the ordinary methods of examination and correction of astigmatism and other refractive errors or muscular defects.

It is stated that many patients with headache of various kinds, digestive disorders, fatigue after a short period of reading, and photophobia or sensitiveness to light, have not been relieved by the ordinary methods, but can be cured by adjustment of the size of the image seen by each eye, so that the retina or brain has equal pictures to fuse or combine into one.

Many oculists feel that with care and patience they can help the great majority of their patients. There undoubtedly remains a percentage, not yet determined, that is not relieved and wanders from one specialist to another and finally gives up the effort to find a relief in medicine or glasses, and adapts itself to simpler environment, reads less, relinquishes the college or the career, and is comparatively comfortable. This group comprises those who tire too quickly, who are slow readers, who have frequent headache and other disorders and whom we are prone to call functional or neurotic.

It is possible, however, that refraction is not taken as seriously as it was formerly. The crowded clinics, the urge of operative work, may have made oculists less regardful of the minor errors which we know are often the source of strain. Also, are we not prone to regard the patient who returns with the symptoms unrelieved or who wanders elsewhere, as a subject for psychoanalysis or as a victim of maladjustment to his job or place in life? It is too easy to wash one's hands of responsibility in this manner.

Every patient who enters one's office is a personal responsibility. His problems of work and endurance, his mode of life and hygiene, all are important. The eyes and their functions are parts of the whole organism and depend upon it for their nutrition and health. Encompassing this is the individual with his varying endurance and resistance to the unescapable stress of life. It is a commonplace that life is more complex and difficult than formerly. If the results of the ingenious and beautiful work of Professor Ames and his colleagues at Dartmouth add a fraction of efficiency, or lessen the burden of a few, it will be a real step forward. It is too soon, and this is not the place, for details of the method or for prediction as to the future.

In view of the wide attention that this subject has received in the press, it will interest many who are having ocular difficulties. It seems fair, then, to say that at this moment the facilities for examination and treatment are very limited. There is only one machine which is available in New York for examination, and the glasses which must be made to correct the size differences are not readily obtainable. The facilities for examination and treatment of suitable cases will, however, improve if the method proves to be as successful, as all hope it will, in giving relief to some of those who have not found it elsewhere. It should not be taken, however, that this method will supplant in any way the proven methods of examination or treatment of the eyes, but that it is accessory to them and should prove valuable to some who have not otherwise been relieved or who have been discouraged in their efforts to find relief.

We may heartily commend Dr. Ames' conservatism in withholding this definite report of what promises to be an exceedingly important and valuable step in the field of physiological optics and in the practice of ophthalmology. At the meeting of the Academy of Medicine, at which the announcement was made, Dr. Ames said:

"I feel that before aniseikonia was discovered we were somewhat in the position of the astronomers studying the solar system before all the important planets had been located. The effects of the unknown ones could be felt, but they were still unknown, and the relationships could not be worked out. They are now worked out, as it is hoped that some day aniseikonia's will be."

COLMAN W. CUTLER, M.D.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

Eye Hazards in Play

A favorite among the comedy situations which always finds a responsive audience is the one which pictures a person who has just been hit in the eye by some small object. For some inexplicable reason this scene is good for a laugh at any time. Yet, far from being funny, such a situation often contains all the elements of a real tragedy for the victim. Even the most trivial accident may bring serious eye trouble if infection develops or if the inflammation spreads to the second eye, as all too frequently happens in accident cases. After all, it matters little that it may have been done in the spirit of play if the result is blindness. Yet how few people stop to think of this beforehand. How many give consideration to possible eye hazards when they select their children's toys or watch them as they improvise playthings for themselves?

To any regular reader of a daily paper some of the stories of accidents to children will have a familiar ring. For example, there is the account of the five-year-old girls, living in one of New York's suburbs, who looked so much alike that even their mother had difficulty in telling them apart until one of them had to have an eye removed after a small playfellow had shot her with a B.B. gun. Many may recall the report of a feud between two small boys which ended in a shooting and an eye tragedy for one of them.

Such stories are not rare! Hundreds of children are injured in this way during a year. In fact, air rifles, cap pistols, arrows, slingshots, and similar weapons are the most frequent causes of eye accidents to children. This fact was discovered by the National Society for the Prevention of Blindness when a study was made of newspaper ac-

counts of eye accidents to children. Contrary to the general impression, cap and blank cartridge pistols are not harmless, since the flash of flame which occurs when they are exploded is often close to the child's eye.

It may also be news to some to learn that in many cities and towns the prohibition of such articles has been made the subject of legislation.

Bang! Will Another Eye Be Lost?

Each parent should find out if his community has such an ordinance.

Many communities also have laws prohibiting the sale and use of fireworks, yet in spite of that fact we find that they too are still a very important cause of eye accidents. Although the season for their use is extremely short, the eye damage which they cause is tremendous. By actual count it was found that more eye accidents occurred on or about July 4th than occurred during 100 days at any other time in the year. Knowing this, is it any wonder that we are impatient to have all communities pass ordinances abolishing fireworks? Or that we reserve our worst expressions of contempt for the parent who, living in a town which prohibits the sale of firecrackers, thinks it smart to purchase a supply for his child in a neighboring town which happens to be unprotected?

It may be well for the unwary parent to take warning against the so-called harmless varieties of fireworks. For example, torpedoes, which are frequently labelled harmless, are particularly dangerous to the eye, since the small pebbles contained in them can so easily penetrate the eyeball. Similar in type to the accidents caused by firearms and fireworks are those which are due to explosives, particularly dynamite percussion caps, gasoline and other highly explosive

chemicals. A vivid paragraph from a newspaper clipping describes what happened in one instance:

Firecrackers Have No Place in the Safe and Sane Fourth

Sharp-pointed Scissors Are a Serious Menace to Eyes

"Three boys, whose ages range from seven to 14 years, were maimed for life by the explosion of a dynamite percussion cap with which they were playing in the street last evening. The boys were in sort of a huddle when one of the group suggested that a match be applied to see what effect the flame would have on the diminutive pellet. A terrific explosion resulted and all three boys were hurled to the pavement. As a result, one boy's eye was so badly mangled that it had to be removed; his younger brother

may also lose the sight of one eye, while the third youngster had to have two fingers amputated."

Adults have a double responsibility in a case of this sort. Not only should they teach their adventuresome sons a wholesome fear of dangerous articles, but they must also see that such things are not left where they can come into the hands of children.

And, while we are considering articles which must be kept out of reach of the children, let us not forget that there are many things in common use in the household which must be absolutely forbidden to the small child of the runabout age. These are the sharp-pointed objects — knives, scissors, nails, wires, hooks, sticks, etc. To allow a small tot to cut a string with a knife is simply to court disaster. Even the older boy cannot safely be trusted with a jack-knife until he understands thoroughly the principles of safe usage.

One could go on for some time quoting further examples of activities and articles which have been found to cause eye accidents to children. There are the chips which fly about during the process of woodchopping; the blows from baseballs or golf balls; the flying parts from spinning toys which break; as well as falls, burns from acids or hot objects, etc.

But one need not be left with a feeling of hopelessness or the general impression that eye accidents are inevitable and that there is nothing he can do about it. There is much that each can do to prevent eye accidents. Some are suggested below:

First, by exercising a sort of safety censorship over the toys and play activities of their own child, parents can save him from eye disaster. They can teach him safety so that he will understand and cooperate in avoiding dangerous play.

Moreover, in their contacts with neighbors and the neighbor's children, parents will find many opportunities to pass on their knowledge.

Finally, there is an excellent opportunity for everyone to prove that he stands for law and order. He can stand back of his local police department in its effort to enforce the ordinances which are made for his child's protection and teach the child to do likewise.

Only through care can each family have a no-eye-accident record for all time!

C. Edith Kerby
Statistician, National Society for the Prevention of Blindness

Note and Comment

Shall We Stop Eye Losses?—Some 2,000 workers lose the sight of one or both eyes each year in the United States; 300,000 industrial eye accidents involving one or more days of lost time occur annually in this country, and 70,000 of them are compensable. In New York State, where, in a three-year interval, there were 7,690 compensated eye cases, the average compensation was $591. These figures, and other as forceful, are assembled by G. M. Briggs, writing a series of articles on eye protection for the *National Safety News*. Eye losses may or may not be rare in the plant, but the penalties, when they do occur, are so heavy to industry, the worker and to society that a vacillating attitude toward them is unthinkable, says this student of eye casualties.

Prevention of Blindness in the Junior Red Cross.—Although members of the Junior Red Cross in forty-eight countries have a special interest in the aid and welfare of the blind, only a few groups are aware of the efforts they are making in the prevention of blindness. In Canada, young members give financial support to the Crippled Children's Fund, under whose auspices vision testing, eye treatment and glasses are provided where needed; in New York City, Juniors make the provision of glasses possible among those public school children unable to pay for them; Japanese Juniors have established trachoma dispensaries. Although many other individual efforts are being made, all Junior Red Cross members are seeking to combat the fly, the carrier of many diseases, and especially of eye diseases in tropical countries. The need of maintaining good posture while reading and studying is understood, although its value as a sight conserver is not usually appreciated. Personal hygiene, as is implied in cleanliness and in the use of individual towels and napkins, is another method of preventing the spread of eye disease. Dr. de Lapersonne, who contributes this information on prevention activities among Red Cross Juniors, in the *Red Cross Courier*, propounds an important eye health rule: Always read in a good light. Assuming a responsi-

bility in the prevention of eye accidents which result from dangerous playthings is another road in the prevention of blindness open to Juniors, and to groups of young people everywhere.

Polar Goggles Described.—The type of goggles to protect the eyes of mountain climbers and Polar explorers has been, up to now, a makeshift affair. The special requirements of such goggles are ability to shut out the ultra-violet and infra-red rays, and to provide clear vision, particularly in the dangerous mountain fogs. Dr. J. D. Magor Cardell, British ophthalmologist, has perfected a goggle which is effective in shutting out rays of light, yet provides full range of vision, and is non-shatterable. In a recent ascent of Mt. Everest, where formerly cases of snow blindness were serious problems, among ninety climbers not a single case of snow blindness developed with the use of these goggles. The writer also recommends them for motorists who drive frequently at night, and for workmen who must have protection from heat and infra-red rays.

Summer Sessions for Sight-Saving Class Teachers.—Four universities and colleges are offering summer courses of training on the organization and administration of sight-saving classes. The following details of the respective courses are given in the order of their opening:

University College, University of Chicago, Chicago, Illinois.—June 20–July 27, 1934. Registration, June 18 and 19. Application should be made as soon as possible to Dean Carl Frederick Huth, dean of University College, Room 202, Cobb Lecture Hall (Ellis Avenue), Chicago, Illinois. Course limited to sixteen students.

University of Cincinnati, Cincinnati, Ohio.—June 25–July 31, 1934. Registration, June 21, by mail to Miss Estella Lawes, director, department of sight conservation, Cincinnati Public Schools, Heberle School, Freeman Avenue, Cincinnati, Ohio, or in person. (The course will not be given if there are not ten candidates registered on or before June 21.)

State Teachers College, Buffalo, New York.—July 2–August 10, 1934. Registration, July 2 and 3. Details may be obtained from State Teachers College, Buffalo, New York, or from Miss Matie M. Carter, state supervisor of sight-saving classes, New York State Education Department, Albany, New York.

Teachers College, Columbia University, New York.—July 9–August 17, 1934. Registration must be made in person July 5, 6, or 7. Information may be obtained from Dr. J. F. Williams, Teachers College, Columbia University, New York City, or from Mrs. Winifred Hathaway, associate director, National Society for the Prevention of Blindness, 50 West 50th Street, New York City.

Prenatal Care for the Expectant Mother Urged.—A review of the literature on "The Diagnosis and Treatment of Syphilis Complicating Pregnancy," by Norman R. Ingraham, Jr., M.D., and James E. Kahler, M.D., in the January issue of the *American Journal of Obstetrics and Gynecology*, carries the following summary: "Syphilis, in the latent stage, as it exists in most pregnant women, is difficult to detect. This means that the disease must be suspected in every case, for a successful termination of pregnancy and a healthy child cannot be expected in the presence of an active or even a quiescent infection of this nature.

"The incidence of syphilis among pregnant women in the clinic class of patient is usually between five and ten per cent. It occurs probably less frequently in the higher classes, but, because it is less often looked for, more cases are likely to escape detection. In the presence of a comparatively early untreated syphilitic infection, the infant mortality rate is increased to five times the accepted average . . . The results obtained by early treatment of the syphilitic mother to save her child are scarcely paralleled in any other medical condition. An infected offspring is seldom encountered if therapy has been commenced prior to the fourth month of pregnancy . . . Too often, in the past, when the physician practicing obstetrics or pediatrics has lost a child suffering from syphilis . . . the responsibility for the unfortunate outcome has been placed upon the patient's lack of co-operation. In the present state of our knowledge the most careful diagnostician may fail to detect an occasional case, but these failures should be very rare indeed. It is to be hoped that the future instances in which syphilis is not diagnosed in the pregnant woman or in her offspring will be those few in which the disease escaped detection although every available method for revealing its presence had been employed."

India Issues Rules for Eye Health.—Among the interesting prevention of blindness projects coming to our attention in recent days is an informative poster, issued by the Junior Section of the Indian Red Cross Society, under the title, "The Prevention of Blindness: Protect Your Eyesight." This poster is illustrated in shadings of blue and carries an illustration for each of the following rules for eye safety:

"1. Keep your hands and face clean. Wash them thoroughly with soap and clean water at least twice daily.
2. Protect your eyes from dust and flies.
3. Do not use a towel or cloth or an eye rod which have been used by other persons.
4. See that your daily diet contains either one chatak of butter, or plenty of fresh boiled but not over-boiled milk or tomatoes or green leafy vegetables.
5. If your eyes are red or if a discharge comes from them, consult a qualified doctor without delay.
6. If your eyes are sore, you may put a few drops of pure castor oil into them after washing them with clean water or boric lotion.
7. Avoid quacks, as they often damage the eyes by use of dangerous and irritant remedies or dirty instruments.
8. If your eyesight is failing, consult a qualified eye doctor at once.
9. Those suffering from syphilis or gonorrhea should obtain regular treatment by a qualified doctor till completely cured. They should not marry until the doctor approves.
10. See that the midwife puts a few drops of one per cent silver nitrate solution into baby's eyes at birth.
11. Get vaccinated and revaccinated every 7 years and also when smallpox breaks out in the locality.
12. Don't play dangerous games with sticks, stones, etc. Fireworks are always a source of danger.
13. Use goggles as protection against glare and dust and to avoid accidents in dangerous trades and amusements.
14. An expectant mother should consult a woman doctor before her delivery.

15. Read in a good light coming from behind and over one shoulder.
16. Don't hold your book too close to your eyes. It should be at least 13 inches away."

Eyesight Swindlers.—The gullibility of people, so far as their eyesight is concerned, is frequently evidenced by reports from various states of instances in which swindlers have promised to treat eye disorders by means of a miraculous radium water, for which a charge of several hundred dollars is made, "satisfaction or your money back" guaranteed. However, before the time limit on this pledge has expired, a confederate appears with a radium belt, unique for its magic powers in curing eye defects, which may be rented upon payment of a deposit—a sum representing the swindler's concept of the amount he can mulct from his victim. Strangely enough, the owner never returns to claim his wonderful belt, and the eyes of the patient remain about the same, or progress in their course, according to the nature of the trouble.

Usually, these naive believers in the great powers of radium water or radium belts are country folk. They are often far from physicians and certainly removed from eye specialists. Yet, even in the cities, they have their counterparts, as advertisements appearing in metropolitan papers and in the so-called "smart" magazines prove. Eye-drops, eye beautifiers, eyewashes, that claim not only to cleanse the eyes of impurities but to restore youthful sparkle and prevent the "morning after" look, and relieve eyestrain, are sold for $2.50 the pint. Their contents, probably as innocuous as the radium water, represent equally a tax on human gullibility and natural hope for the miraculous.

Lighting the Operation, Not the Room.—The principles of hospital illumination have been discussed and outlined frequently by illumination experts; a sound contribution on the subject by a surgeon is of special interest. Dr. A. T. Bazin, writing for the March issue of the *Modern Hospital*, declares that the high cost of medical care is due in no small degree to luxuries in operating room equipment. The operating suite is the surgeon's workroom, not the architect's and engineer's showroom. He recommends

that expensive daylight installations be discarded. "It's the wound, not the room, that needs careful lighting," is his slogan.

Functions of a Medical and Prevention Sub-Committee Defined.—Defining the prevention aspect of the work of a regional sub-committee, Dr. G. W. N. Joseph, chairman of the Medical Sub-Committee of the Northern Counties Association of the Union of Counties Associations for the Blind, in England, mentioned the eight points that have, up to this time, been covered by his group: 1. Collection of various data and statistics; 2. Investigation into industrial causes in the area; 3. Drafting a record card for use in eye hospitals; 4. An inquiry into the necessity for a residential sight-saving school for the North of England; 5. Directions for home teachers in the question of how far poverty may be a possible contributory cause of blindness; 6. Drafting a memorandum for local authorities, outlining a model comprehensive scheme for the prevention of blindness; 7. Report on the causes of blindness in babies; 8. Investigation into the records of cases of ophthalmia neonatorum and comparision with the annual reports of medical officers of health. Other activities which, in his published report to the general meeting of the Union of Counties Associations for the Blind, he considers in detail are the studies to be made into hereditary blindness and the growth of follow-up of eye patients attending clinics.

New York State Commission Seeks to Lower Ophthalmia Neonatorum.—At an open meeting of the New York State Commission for the Blind, held in the Commission's New York City offices, on March 2, a summary of the department for the prevention of blindness' five-year study of the incidence of ophthalmia neonatorum was presented and discussed by members of the Commission and by its invited guests. Present at the meeting were representatives of the State Departments of Health and Education, of the City Board of Health, and of social agencies; two ophthalmologists, as well as members of the Commission and the executive staff, entered the discussion.

The five-year study brought to light the fact that within that period in New York State nineteen babies lost their sight and

sixteen others will have seriously impaired vision for life, because of ophthalmia neonatorum. These figures do not include the numbers of children likewise afflicted in New York City. It is believed that the proportion of blindness from ophthalmia neonatorum in New York State is greater than in any other state in the nation. After considering causes and possible means of prevention, the group came to the following conclusions:

"1. Physicians must be educated to realize that ophthalmia neonatorum still exists and that adequate measures of prevention must be taken.

"2. Prenatal care should be extended and the importance of it impressed on the laity and physicians. Stressing of prenatal care must not be allowed to lessen emphasis on the use of a prophylactic, inasmuch as silver nitrate is the essential thing and prenatal care will be slower of development.

"3. Laxity in use of prophylactics by physicians is observed. Many doctors do not use silver nitrate. There was no difference of opinion that silver nitrate should be used and no substitute permitted. Physicians should be educated to practice this.

"4. Hospital superintendents should know and act according to authority and regulations governing the release of a baby until two negative smears forty-eight hours apart have been obtained.

"5. A brief, succinct leaflet should be circularized amongst physicians giving the outstanding figures for the five-year period. Proper methods of care, including thorough washing out of the eyes before instilling silver nitrate should be stated. That no time should be lost in securing smears and immediate hospitalization, together with other essential points in procedure, should be stressed. Such a leaflet might be circularized by lay organizations.

"6. In general educational publicity, the fact that medical care at birth is available to persons who are self-maintaining (as well as to indigent persons), if they cannot afford to pay a doctor's fee, should be clearly stated."

Missouri Commission Broadcasts Prevention.—Many people are hearing regularly of the activities of the Missouri Commission for the Blind, whose staff now broadcast monthly over two St. Louis radio stations. One talk puts its emphasis upon the social service

side of the Commission's program, especially upon its prevention of blindness and sight conservation aspects; the other interval on the air is used for describing the industrial program for the economic development of trained, employable, blind adults. Stimulated by the interest aroused through the radio broadcasts, and the publicity given them in local papers, many new requests for speakers on prevention of blindness and allied work have been made to the Commission by student groups and local organizations and societies.

Dr. de Lapersonne Receives Leslie Dana Award.—The Leslie Dana Gold Medal, given annually for outstanding achievement in the prevention of blindness and the conservation of vision, was presented this year to Dr. F. de Lapersonne, noted French ophthalmologist and president of the International Association for Prevention of Blindness, at the annual meeting of the Association in Paris. Dr. de Lapersonne is the second European to be awarded this highly prized medal; the late Dr. Ernst Fuchs of Vienna received it in 1929. A selection for the honor is made each year by the National Society for the Prevention of Blindness in co-operation with the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana of St. Louis. Dr. Park Lewis, vice-president of both the National Society and the International Association, made the presentation to Dr. de Lapersonne. The conditions of the Leslie Dana Medal award set forth that it is to be made for "long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight; research and instruction in ophthalmology and allied subjects; social service for the control of eye diseases; and special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision."

Millions for Compensation—Protection for $3.21 per Employee.—In a Wyoming coal mine employing 1,742 workers, 11 eyes were nearly or entirely lost over an eight-year period. Not so many eyes lost, for those who still have theirs, but a great loss to those unlucky few whose sight was thus impaired, and too high a proportion for the mine. A sight conservation program—including vision

testing and fitting with corrective glasses where necessary, provision of the most efficient type of goggle for the type of work, and the shifting of those employees with markedly poor eyesight to less hazardous positions—shows, in a one-year period, not a single eye injury. The cost of this vigorous and efficient eye protection program has amounted to exactly $3.21 per employee, including the cost of eye examinations by an oculist and the filling of prescriptions for glasses where they were needed.

That it is possible to provide eye protection, at a cost infinitely cheaper to the employee, the employer and society, than compensation for eye accidents needs even greater emphasis than has been placed upon it, in view of the report of the director of the Division of Workmen's Compensation of the New York State Department of Labor. Eye injuries in New York cost more than a million dollars a year in compensation awards; three of every hundred awards are for eye injuries; of the 3,000 cases compensated, one-third resulted in a permanent loss or impairment of vision.

Safety Glass Legislation Growing.—The marshalling of cold, indisputable facts on the amount of damage done by splintering, flying glass in automobile accidents will act as a special impetus toward preventing such calamities in the future. Morgan T. Ryan, registrar of motor vehicles in Massachusetts, has made such a listing in the annual report of the Registry of Motor Vehicles for Massachusetts. Figures for that state show that of the 6,489 cases investigated in detail (16 per cent of the total number of accidents), in 1932, cuts by broken glass were present in the case of 78 fatalities and in 933 non-fatal accidents. In 1933, there were 13 killed and 981 injured in about the same number of investigated accidents.

New York, Pennsylvania, New Jersey, Massachusetts, Michigan and Nebraska have already enacted laws demanding for their citizens the protection of non-shatterable glass in motor vehicles; Iowa has recently passed a similar law, while bills are now before the legislatures of Kentucky, Virginia and the District of Columbia, which would make the use of non-shatterable glass mandatory in automobiles. With the mounting toll of automobile accidents in the nation, such a step to eliminate an unnecessary hazard should be taken by every state.

Sight-Saving Classes Urged for Spain.—Coincident with the rapid advance of social philosophy in Spain are the growth and expansion of educational facilities. In a recent issue of *Los Ciegos* (Madrid), Dr. J. Arjona urges the necessity of educating partially seeing children in sight-saving classes. Dr. Arjona advances the conventional arguments in favor of this type of special education, describing the already established classes in England, the United States, Germany, Hungary, Austria and other countries. He concludes with the following plea:

"In our country nothing has been done in this direction until now, although in recent years some leaders have given thought to the establishment of such type of school; because of the changes in the ministry of public instruction, which have made progress difficult, the project has not gone ahead.

"We hope that if, as it appears, we want education among our people to be extended to all, without depriving anyone of its benefits, some attention will be given to the problem of those with defective vision, putting them in the position to acquire an education and giving them an opportunity to make the most of their intelligence; who can foretell the benefit that will result to the future of the nation?"

Dr. Bedell Gives Comprehensive Lecture on Prevention of Blindness.—"Causes and Prevention of Blindness" was the subject of the Hermann M. Biggs Memorial Lecture, given by Dr. Arthur J. Bedell, at the New York Academy of Medicine, on May 3, 1934. Dr. Bedell's paper covered a very wide field, and many of the interesting points that he made were of necessity not developed. Taking the causes of blindness in their chronological order, he showed that pregnancy, with its threat of abortion and toxemia, might cause blindness; birth, with the possibility of pyogenic infection and the hazard of trauma, as well as developmental factors, is a time when blindness might occur. Systemic disease—notably syphilis—is a frequent cause of blindness, although not always immediately apparent.

Attempting to show the delicate borderline between hereditary and environmental causes of blindness, Dr. Bedell mentioned the diseases, cataract and glaucoma, both of which are usually con-

ceded to be hereditary, although apparently isolated cases are frequently met. Detachment of the retina, which may occur at any time and in any type of eye, most often is found in the nearsighted eye. Accidents, at play in childhood, in sports, and in industrial pursuits, are menacing causes of blindness throughout life, as are eyelash dyes and depilatories which have been known to cause blindness in women.

Dr. Bedell stressed the rôles of the ophthalmologist, the obstetrician, the family physician, the educational agencies, the public health organizations, the social agencies, and eugenics groups in the co-operative movement for the prevention of blindness, all of whom must unite under the guidance of organized medicine. Preventive measures that he recommends are: sterilization of the unfit, with premarital health certification; better prenatal care to prevent the development of congenital syphilis and gonorrheal infection; (he insists upon the importance of using the only reliable prophylactic against ophthalmia neonatorum—silver nitrate). Prevention of accidents in childhood, better lighting in the homes and schools, physical examinations, both of the preschool and school child, by the family physician, the organization and best utilization of sight-saving classes for those with seriously defective vision, are steps recommended for prevention of eye difficulties during school years.

Methods of treating cataract and glaucoma and the great advance in the treatment of detachment of the retina are further steps in preventing blindness from these diseases. He concluded that the great task of prevention is one of the opportunities and responsibilities open to physicians. The movement to conserve sight owes a great debt to school inspection, which has helped to locate children needing special eye care; to the organizations fighting veneral disease, which is such a great cause of blindness; and to the National Society for the Prevention of Blindness, for its co-ordination and interpretation of sight conservation measures.

Enlightenment First Step in Prevention of Disease.—"Syphilis, thriving on secrecy, false modesty, and ignorance, has become one of the major causes of death in the United States. Its control can be effected only through an enlightened public," says Dr. A. F. Hall, assistant director of the Life Conservation Division, Lincoln

National Life Foundation. One means of encouraging public knowledge of the ravages of the so-called venereal diseases is to acknowledge the diseases by their names, rather than by labeling them "social diseases," or "venereal diseases." Since it is estimated that forty per cent of syphilitic infections are acquired through other than illicit sex relationships, it is obvious that the stigma attached to the disease is unjustified. Unemotional consideration of the disease will help to bring knowledge of its prevention and treatment more completely before the public.

Closely approximating this demand for removing the onus of a widespread disease is the action of the Public Health Council, at its meeting in New York City, on March 16, in unanimously adopting the following resolution relative to the definition of ophthalmia neonatorum as used in Section 343–p, Article XVII–B, of the Public Health Law:

"Whereas, the term ophthalmia neonatorum as used in the Sanitary Code includes types of acute suppurative conjunctivitis of the newborn other than those due to gonococcus infection, and

"Whereas, under Section 83 of the Public Welfare Law, the public welfare district must provide necessary medical care for all persons under its care, and for such persons otherwise able to maintain themselves who are unable to secure necessary medical care, except in so far as, in cases of communicable disease that duty may be imposed upon the health officer, and

"Whereas, under Section 343–p, Article XVII–B, of the Public Health Law, boards of health or health officers are obliged to provide medical care for persons suffering from venereal disease who are unable to pay for treatment, and

"Whereas, confusion has arisen in the past as to the provision of medical care for ophthalmia neonatorum cases because of initial uncertainty as to the organism concerned, and since disastrous results might follow, if the treatment of such cases were delayed until laboratory reports had been received,

"Be it Resolved, that ophthalmia neonatorum is not to be considered a venereal disease in the sense that this term is used in Section 343–p, Article XVII–B, of the Public Health Law."

Social Service in Eyesight Conservation.—The Committee of Medical Social Eye Workers, sponsored by the American Association of Hospital Social Workers and the National Society for the Prevention of Blindness, met in Kansas City, Missouri, on May 24, during the National Conference of Social Work. Miss Eleanor P. Brown, secretary of the Committee, acted as chairman of the meeting. The following papers were presented: "The Rôle of Medical Social Service in Preventing Blindness," by William M. James, M.D., St. Louis, Missouri; "Possibilities for Sight Conservation in Community Work," by Miss Dorothy Hosford, Prevention of Blindness Department, Pennsylvania Association for the Blind, Pittsburgh, Pennsylvania; "Possibilities for Sight Conservation in Hospital Work," by Miss Eleanor Lee Hearon, eye social worker, Colorado General Hospital, Denver, Colorado.

National Society Notes.—The National Society has the pleasure of announcing the election to its Board of Directors and Executive Committee of Mr. Mason H. Bigelow, of New York. Mr. Bigelow has long been actively interested in the affairs of the Society, and brings to its Board a wide experience in its business management as well as a profound enthusiasm for its undertakings.

In accordance with the rule of Johns Hopkins University, which requires retirement at the age of seventy, Dr. William H. Wilmer, one of the Society's Directors, resigned from the post of director of the Wilmer Ophthalmological Institute and as professor of ophthalmology. The Society looks forward to still further opportunity of having his personal counsel and assistance.

Mr. Lewis H. Carris, managing director, who with Dr. Park Lewis, vice-president of the Society, attended the annual meeting of the International Association for Prevention of Blindness, in Paris, took the opportunity to confer with various European authorities in the prevention of blindness movement. He was present also at a meeting in London of the English Prevention of Blindness Committee. Mr. Carris represented the Society at a dinner given, in Paris, to the delegates to the conferences of the International Association for Prevention of Blindness, the International Organization for the Control of Trachoma, and the committee of the Fifteenth International Ophthalmological Congress.

Mrs. Winifred Hathaway, associate director of the Society, has been maintaining and developing contacts in various parts of the country for the promotion of sight conservation work. At New York University, in New York City, she addressed the child hygiene class on various aspects of prevention of blindness; in Baltimore, at the annual meeting of the Maryland Society for the Prevention of Blindness, she spoke on "Problems Suggested in Sight Conservation Work." At a meeting of the Massachusetts Sight Conservation Society, in Boston, Massachusetts, she discussed vocational guidance as it applies to sight-saving classes. The question of establishment of sight-saving classes in Louisville Public Schools took her to Louisville, Kentucky. At the Alabama Conference of Social Work, Mrs. Hathaway will discuss eye protection for the physically handicapped; she will also visit schools in Birmingham and Montgomery and confer on sight-saving class needs.

At the National Conference of Social Work, held in Kansas City, Missouri, Miss Eleanor P. Brown, associate director, represented the Society, and participated in the meeting on "Social Service in Eyesight Conservation."

Co-operating with the New York Tuberculosis and Health Association, the Society has sponsored several radio talks on eye health given by Dr. Le Grand H. Hardy, ophthalmologist and member of the Advisory Committee of the Society, Mr. Theodore O. Yoder, staff associate, and Mr. David Resnick, director of publicity.

Miss Mary Emma Smith, R. N., director of nursing activities, has represented the Society at several national conferences of note; at the Biennial Nursing Convention, in Washington, D. C., she conducted two demonstrations of vision testing of young children; at the National Conference on Fundamental Problems in Negro Education, also held in Washington, in her capacity as member of the advisory committee of the Conference she spoke to several groups on prevention of blindness. Other meetings include the Metropolitan Nursing Service, in Jersey City, New Jersey, Simmons College School of Nursing, Boston, Massachusetts, Faulkner Hospital, Jamaica Plain, Boston, Massachusetts, and the Vermont State Nurses Association, in Pittsford, Vermont, where Miss Smith

discussed prevention of blindness and sight conservation from the nursing angle.

Dr. Anette M. Phelan, staff associate, has visited the State University at Bloomington, Indiana, Peabody College, Nashville, Tennessee, and Eastern State Teachers College, at Richmond, Kentucky, where she co-operated with administrative officers and teaching staff in planning units of study in eye health which are to be incorporated in existing hygiene, psychology, and education courses.

Current Articles of Interest

The Safe Plant is Well Lighted, A. B. Oday and Alston Rodgers, *National Safety News*, March, 1934, published monthly by the National Safety Council, Chicago, Ill. "The necessity for aiding the eyes is probably greater today than ever before, because present-day living conditions impose a heavy tax on our powers of vision. . . . The products of civilization, while lifting burdens from backs, have imposed greater strain on eyes, minds and nerves," say the authors, and proceed to demonstrate how better lighting benefits every phase of plant production, although its operating cost is only three-tenths of one per cent of the total cost of production. Proper plant lighting, besides being of inestimable value to plant efficiency, reduces accidents and prevents spoilage of tools and materials.

The Significance of Eye Conditions in General Welfare Work, Ruth B. McCoy, R.N., *Social Welfare Bulletin*, February, 1934, published monthly by the New York State Department of Social Welfare, Albany, N. Y. An outline of hygiene of the eye, this brief article discusses correction of refractive errors, proper lighting, and systemic diseases in relation to sight conservation.

These Others, E. Chesley Allen, *Serving Sight*, February, 1934, published by the Canadian National Institute for the Blind, Toronto, Canada. Description of two classes for partially sighted rural children, established in the resident Halifax School for the Blind. The writer says that although the training of blind and partially sighted children in the same school is not theoretically ideal, the frank recognition of the differences between the sighted and the blind has led to a happy adjustment for both groups and given the partially sighted children opportunity for education which would otherwise be denied them.

Eye Injuries in the East Texas Oil Fields, V. R. Hurst, M.D., *Texas State Journal of Medicine*, February, 1934, published monthly by the State Medical Association of Texas, Fort Worth,

Tex. "When an oil field develops in a community," comments the writer, "a great increase in all forms of eye injuries is to be expected, especially of intraocular foreign bodies. . . . In the localization of foreign bodies within the eye, contact markers and injections of lipiodol or air in Tenon's capsule are valuable aids. In the removal of foreign bodies from the vitreous the scleral incision has given good results."

Sight Conservation in a School Health Program, Mary Emma Smith, R.N., *Public Health Nursing*, April, 1934, published monthly by the National Organization for Public Health Nursing, New York, N. Y. Reviewing the objectives and aims of eye health as an intrinsic part of the school health program and defining some of the weaknesses in putting these into effect, the writer concludes: "It would be interesting to see what could be accomplished in a school system in protecting the health of the children if the latent strength in the community could be used in a united effort. This would not necessarily call for the employment of specialists, but it would call for leadership in mobilizing and using all the agencies in the community—the health department, medical profession, social agencies and civic organizations."

Lighting in Textile Mills, E. L. Elliott, *Textile Bulletin*, March 15, 1934, published weekly by the Clark Publishing Company, Charlotte, N. C. Outline of typical problems in lighting in textile plants, and application of principles of lighting to their solution.

The Menace of Hereditary Blindness, J. Myles Bickerton, M.A., F.R.C.S., *British Medical Journal*, January 20, 1934, published weekly by the British Medical Association, London, England. Estimating that nearly a quarter of all blindness is hereditary, the author traces the laws of inheritance of such eye diseases as high myopia, retinitis pigmentosa, optic nerve atrophy, congenital cataracts, ectopia lentis, glaucoma, blue sclerotics, glioma, and maculocerebral degenerations. He offers as a solution certain remedies, and he concludes: "In Mexico the State of Vera Cruz has put into effect laws for the legalization of birth control, sterilization of certain criminals and mental defectives, prevention of hereditary ail-

ments where practicable, and the prevention of marriage by persons who are mentally deficient or physically or economically unfitted to have children. How long must we in England continue with our present inhuman methods?"

Visual Results in Cases of Intra-Ocular Foreign Body, Walter F. Duggan, M.D., *Archives of Ophthalmology*, December, 1933, published monthly by the American Medical Association, Chicago, Ill. A study of eyes penetrated by a foreign body, to discover the results in terms of visual capacity, does not show definitely whether vision decreases after the removal of the foreign matter; however, the author notes, if siderosis is present at the time a foreign body is removed, it is probable that vision will continue to deteriorate. A scleral wound, either operative or accidental, seems definitely to favor the development of detached retina, a vitreous exudate, or both.

The Testing of Visual Acuity, C. E. Ferree and G. Rand, *American Journal of Ophthalmology*, January, 1934, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. This first article in a series of studies of refraction testing discusses factors in the sensitive use of the test for detection of errors of refraction. The authors find that refraction tests should not be restricted to the conditions which give the best reading ability, but should include also those which test primarily the clearness of the image formed on the retina.

Problems in the Physiology of Visual Acuity, Francis Heed Adler, M.D., *Archives of Ophthalmology*, January, 1934, published monthly by the American Medical Association, Chicago, Ill. In a thorough dissertation upon the light sense, the author points out that visual acuity, as tested with the Snellen charts, is not a test of the various retinal functions alone but involves many other physiologic and psychologic factors. He adds that the extent and severity of a lesion in the fovea cannot be measured accurately, and its progress cannot be satisfactorily noted with the present crude methods. The evidences of dissatisfaction with the reading of letters as a quantitative measure of retinal function will probably

result in the development in the near future of tests which analyze more closely the physiologic functions of the retina alone.

The Use of Calcium Gluconate in Diseases of the Eye, Georgiana D.Theobald, M.D., *American Journal of Ophthalmology*, November, 1933, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. Citing literature on the administration of calcium in eye diseases, and drawing upon recent case histories, the author concludes that the action of calcium gluconate is similar to that of calcium chloride, but less toxic. It has been found to be very effective in phlyctenular disease and in certain types of uveitis.

The First Medical Refractionists, Harry Friedenwald, M.D., *Archives of Ophthalmology*, January, 1934, published monthly by the American Medical Association, Chicago, Ill. At the beginning of the nineteenth century, physicians were warning patients against the dangers of wearing spectacles; the development of the scientific study of refraction by physicians and by physicists and physiologists which occurred during the first three-quarters of the nineteenth century has, in large measure, contributed to the advancement of knowledge of diseases of the eye; and it has influenced the increase of scientific precision in cultivating care in and correctness of observation.

Eyes and the Library, Olive Grace Henderson and Hugh Grant Rowell, M.D., *Library Journal*, March 15, 1934, published semi-monthly by R. R. Bowker Company, New York, N. Y. While developing the spiritual and esthetic sides of human welfare, the library in general is guilty of having neglected the physical. Three great faults in most libraries, say the writers, are "poor ventilation, bad lighting and damnable seating." Considering the problems of lighting and seating, it is found that modern lightmeters have done away with the need for measuring light by rule of thumb; seating, too, is important in eye comfort, since good and comfortable posture forces the eyes into proper relationship with the book. To make library reading and research more physically ideal, especially in school libraries, the authors describe an individual reading unit, having a sloping reading stand, a flat-topped section for note taking, an adjustable posture chair, and a local light source to supplement the general lighting.

Modern Industrial Lighting, J. W. Howell, *Industrial Welfare and Personnel Management*, February, 1934, published monthly by the Industrial Welfare Society, London, England. Industrial reconstruction, which is forecast by trade observers, must be met by improved working conditions. The writer discusses the importance of providing good industrial lighting for the promotion of efficiency and the reduction of accidents and spoilage. A table of lighting standards is presented, giving values to be maintained for specific tasks; and the gross sins of lighting—glare and shadows—are explained. The importance of careful upkeep of a lighting system and of the provision of good equipment is pointed out.

Endocrines in Ophthalmology, Louis Bothman, M.D., *Illinois Medical Journal*, March, 1934, published monthly by the Medical Profession of Illinois, Oak Park, Ill. The relation between hyperthyroidism and exophthalmos has been recognized for more than a hundred years; the writer describes three cases of exophthalmos following correction of the thyroid dysfunction through thyroidectomy; in cases of progressive myopia, combined with low metabolism, increasing the thyroid arrested the progress of the myopia. The rôle of the parathyroids in calcium metabolism and tetany has been well established, and the resultant production of cataract in rats after parathyroidectomy, as well as the occurrence of cataracts in humans after such an operation lends due weight to the relationship between cataract and endocrine function.

Ophthalmology as an Aid in the Diagnosis of Systemic Disease, William F. Hardy, M.D., *Weekly Bulletin of the St. Louis Medical Society*, February 9, 1934, published weekly by the St. Louis Medical Society, St. Louis, Mo. "Though the eye may be of service as an aid in the diagnosis of general disease, it is equally or more true that a general examination is of great value in clearing up the etiology of ocular conditions," says the writer. Eye signs of systemic diseases are often first symptoms of danger, and "if ophthalmology can be of help in the making of an early diagnosis and thereby prevent or delay the ravages of disease, it has justified its existence as a definite specialty and as a handmaid of general medicine."

Book Reviews

BLINDNESS AND THE BLIND IN THE UNITED STATES. Harry Best, M.A., Ph.D., LL.B. New York: The Macmillan Co., 1934. 714 pages.

This book was not needed to add to the reputation of its author. From the publication, in 1919, of his book on *The Blind* he stands at the head of writers on this subject. But in the fifteen years that have since elapsed, the shifting in legal provisions for the blind, the number of people sympathizing with the misfortune of the blind and desiring to help them, the new understanding of what the blind need and of what can be done for them, have so completely changed that a new presentation of this subject was urgently needed; and the book had to be nearly double the size of its predecessor.

This is more than a book. It is a one-volume encyclopedia of blindness, and an index catalogue of the literature that relates to the subject. The part of the book to be read is well printed, in good type, on good paper; and its weight has been kept down to the limits for convenient handling. The reference notes are printed in fine type, to make it possible to print so much bibliographic information in one volume of moderate size. But the grouping of subjects and references is so well done that one can find what he wants to refer to, with comparatively little search.

The grouping of information into fifty-five chapters, each with its appropriate heading, and the alphabetic index, of ten double-column pages, make this a model reference book. Any one who wants to know about the blind must have access to this book, and the number of people who do want to learn about the blind makes it essential to have it in every up-to-date library.

What is most essential about this work is that the facts here brought together, the arrangement of them, the philosophy that has assembled them and sees their true meaning, all point directly to the supreme importance of preventing all blindness that can be prevented, and to the need for a better understanding of the blind, and their problems, on the part of those who have sight. Every

habitual reader of this magazine will find this book interesting and valuable—both to read the parts he is now particularly interested in, and to have at hand to consult, when some other aspect of blindness attracts his attention.

EDWARD JACKSON, M.D.

THE INJURED WORKMAN. G. F. Walker, M.D., M.R.C.P. Foreword by W. H. Maxwell Telling, M.D., B.S., F.R.C.P. Bristol: John Wright & Sons Ltd., 1933. 190 p.

Of necessity, this review will be limited to the ophthalmic aspects of the problem of the injured workman, since the nature of the REVIEW indicates the special interest of its readers. However, anyone concerned with eye injuries in industry has an essential concern with workmen's compensation.

The general practitioner lives under the shadow of the Workmen's Compensation Acts which, in the English-speaking countries, are very similar. He is responsible for the accurate diagnosis and correct treatment of the various injuries to which the workman is liable and which he sustains and for the accurate and detached presentation of his claims before those individuals, corporations, employers, insurance companies, and the courts, whose duty or liability it is to settle the all-important question of compensation. It is better to be informed than to wait until practical knowledge is thrust upon one by actual experience in court.

The general practitioner sees and is mostly called in to diagnose, treat and give his opinion upon the amount of damage in these cases. He will find that most of his patients are ordinary and ordinarily honest. However, there are a large number in which the expert with his greater experience of special and difficult cases is of more assistance in the diagnosis and the extent of damage. I always admire the courage with which certain sensible judges, a select minority, take the advice of the experts. Although the majority of cases are simple and straightforward, yet there is a complex pressure on the workmen of whom certain types are clearly differentiated: (1) The person who honestly believes the injury to be more serious than it actually is; (2) the reluctant suffering from ergophobia (in plain English, "laziness"); and (3) a class to which malingering is the only accurate description.

From the employers' side, there is a reluctance to reinstate men in work, as in many cases there is no light work available and they are familiar with the difficulty of getting men off such work, once they have tasted its sweetness. The workman drifts into what is often a long-drawn-out period of idleness and financial suffering which is demoralizing. The insurance companies likewise create a pressure system usually to get rid of every claim in the shortest time and the cheapest way possible. The courts have so construed in favor of the workman as to create a class dependent upon compensation, which surely could never have been originally contemplated by the framers of the acts.

The question of acceleration or aggravation of a pre-existing condition of constitutional disease or infirmity from an accident is constantly arising. The malingering tendency of the British workman, and probably also workmen of other nationalities, is a regrettable characteristic motivated by cupidity.

The law generally lags behind medical opinion; it requires a clear probability of the relationship of the accident and its effects to the injury. In order that a workman may become entitled to compensation, three primary factors must be established: (1) He must suffer a personal injury; (2) that injury must result from an accident; and (3) the accident must arise out of and in the course of the man's employment. In addition to this, the question arises, "Was it part of the injured person's employment to hazard, to suffer, or to do that which causes injury?" In an emergency, the ordinary scope of a man's employment is extended.

Ophthalmic evidence is becoming more and more the province of experts, and a thorough examination by all methods must be made, including the ophthalmoscopic, the slit-lamp, and the X-ray pictures in many cases, as the question will be asked in court whether or not such examinations have been made. Aside from direct injuries to the optic nerve causing loss of sight, there are cases of injury to the brain in which no atrophy is apparent and the pupillary reactions are normal to light and accommodation but these are exceedingly rare. The actual loss of vision in the one-eyed man is given as loss of: (1) one-sixth of the total visual field of the two eyes, (2) all stereoscopic vision, (3) partial time through complete loss of power to judge distances, (4) the reserve of safety in the

event of an injury to the other eye. A young man apprenticed in a skilled occupation may regain in a year or so enough perception of depth to work adequately, whereas an elderly man may not do so. In most trades, a young man with one eye may be as good as a two-eyed man. The percentage loss in ability for loss of vision is accepted as that of the U. S. Veterans Bureau as given in Würdemann's *Injuries of the Eye*. The mathematical formula of this author is also accepted.

On the whole, this work is so clearly written and uncomplicated by technical terms that it is a reliable and easy guide for the use not only of physicians but of compensation boards and the courts. In its preparation, Dr. Walker had the collaboration of J. Harvey Robson, barrister-at-law (Law); R. E. Jowett, M.D., Ch.B., D.L.O. (Ear, Nose, and Throat Surgery); Stanley Ritson, M.B., M.S., B.Sc., F.R.C.S. (General Surgery); John Foster, M.A., M.B., F.R.C.S., D.O.M.S. (Ophthalmic Surgery). The price of the book is moderate, only six shillings.

HARRY VANDERBILT WÜRDEMANN, M.D.

INDIVIDUAL DIFFERENCES IN NORMAL COLOR VISION—A Survey of Recent Experimental Work (1910–31). W. O'D. Pierce. Medical Research Council, Reports of the Committee upon the Physiology of Vision, XI. London: His Majesty's Stationery Office, 1933. 96 p.

This pamphlet of less than 100 pages is the fifteenth of the Research Council's bulletins dealing with vision. Like the others, it is a survey of the most productive period (1910–31) of this subject.

It is technical in language and substance to such an extent that one not constantly working in the field of psychology and physiology feels the need of a glossary of technical terms in order to help him interpret the substance of the paper less laboriously. While the pamphlet is of the very highest value and will certainly hold an important position in the literature of color vision, there are occasional defects which should be corrected in later printings —for instance, on page 33 we find a statement which implies that the foveal field of vision is 2° in diameter. One is impressed with the small groups of subjects studied in the different types of experiments.

Of particular interest to the ophthalmologist is the survey of literature dealing with differences in color fields (Section V, page 55). Most of these references are to the studies of Ferree and Rand or their co-workers. Of considerable interest, also, is a reference on page 83 to the influence of color on acuity of vision, speed of vision, and effort to sustain vision.

This report is essential to anyone interested in the study of vision in relation to color.

JOHN N. EVANS, M.D.

A STUDY OF SIGHT-SAVING SCHOOLS. J. Sexe, M.D. Translated and condensed from a review appearing in *Valentin Haüy Revue*, September, 1933.

The extensive study of Dr. Jean Sexe comes at an appropriate moment, when Paris has at last decided to follow the example of Strasbourg and so many great foreign cities, by opening under the direction of Prof. de Lapersonne, schools for the partially sighted. A study of the question is singularly auspicious.

We particularly appreciate Dr. Sexe's first chapter, "What Has Been Done for Children with Poor Sight?" in which he covers the history of the first steps taken for the protection of children with poor sight in foreign countries, especially in England, the United States and Germany, the countries that have taken the lead in this field. This chapter is especially timely in that it may stimulate our organizers through the example of the work of others. Even Switzerland and Poland have outstripped us in this direction. Dr. Redslob, in Strasbourg, was the first to open a special school on the Continent, in 1911. Paris should have at least forty classes for amblyopes; she has exactly one, which has been in existence for only a year.

We again congratulate Dr. Sexe on his bibliography, which fills no less than ten pages in small type and which affords an extremely important source of information for fuller study on the question.

I should like to draw attention to the last two chapters. In the last chapter, the author enumerates the occupations, positions and professions which persons with defective vision may follow successfully; the critical survey which he makes demonstrates the varied background which Dr. Sexe has brought to his work. He reviews,

notably, under what conditions the positions of baker, cook, gardener, masseur, musician, operator of blast furnaces, sign painter, painter, sculptor, professor of modern or ancient languages, are possible. One might prefer, perhaps, that the author's preferences be more firmly marked, in view of his own experiences. But Dr. Sexe would answer, perhaps, that since the foreign schools have so completely neglected vocational teaching (it has absolutely no place in the curriculum of the schools in the United States), the time has not yet come for a thorough, objective study.

In the chapter before the last, he considers the question of rural children with defective vision, a difficult and highly controversial subject. In a city, it is easy, or relatively easy, to group as day scholars those children with defective vision. In the country, this solution is impossible and, in most of the countries where sight-saving classes are considered, the question has not been answered. In general, the economic consideration has prevented the development of special boarding schools for these pupils. I believe that we are in general agreement here with Dr. Sexe. Certainly it would be a shame—indeed it would be criminal—to transfer these children to the city, to expensive boarding schools, under the pretext of giving them primary instruction only a little better. Let us find the best means of giving to those intelligent children of the country the education which they deserve. To my idea, the special schools for the blind are sufficient at this moment. But let us avoid, as theoreticians, correcting the smaller evil by one even greater.

Briefer Comment

NEW ALIGNMENTS BETWEEN PUBLIC AND PRIVATE AGENCIES. Linton B. Swift. New York: Family Welfare Association of America, 1934. 72 p.

The depression and the tremendous increase in the need of family welfare and relief programs have, of necessity, given rise to a new concept of the relationships between public and private agencies in a community. Taking an average community—Manton—the author shows the new problems involved and the new philosophy applied in concrete situations.

LIFE-GIVING LIGHT. Charles Sheard, Ph.D., Sc.D. Baltimore: The Williams and Wilkins Company, in co-operation with The Century of Progress Exposition, 1933. 174 p.

It is not often that a scientist is able to impart his knowledge to the average reader, without some trace of condescension; Dr. Sheard's small book, written for the popular Century of Progress audience, succeeds in carrying over the accuracy of observation and conclusion of the scientist in a manner to arouse the enthusiasm of the lay reader. Lights, sight, color, energy, growth, and a philosophy of life evolving from the concept that light—the sun—is the center of life and the force that makes life continue, are ably and excitingly presented.

BULLETIN OF THE OPHTHALMOLOGICAL SOCIETY OF EGYPT, Vol. XXVI, 1933. Cairo, Egypt: Misr Press, 1933. 256 p.

In a country where ophthalmologic problems are of special importance, the reports of its ophthalmological society cannot lack interest. Trachoma and acute ophthalmias received special emphasis, with Dr. Peter K. Olitsky of the Rockefeller Institute for Medical Research contributing a paper on "Bacteriological Studies on Spontaneous Conjunctival Folliculosis of Monkeys," but cases of more general occurrence—cataract, detachment of the retina, ocular palsies—are also described in this comprehensive volume.

A GLOSSARY OF FRENCH MEDICAL TERMS REFERABLE TO THE EYE. Ellen Kerney, A.M. New York: Institute of French Studies, Inc., Columbia University, 1934. 209 p.

For the librarian, the translator, and the student of French ophthalmological literature, this compendium of French ophthalmological terms will prove especially valuable.

DIRECTORY OF AGENCIES FOR THE BLIND, 1934. London: National Institute for the Blind and Gardner's Trust for the Blind, 1934. 130 p.

A source of details of voluntary agencies, schools, workshops, and societies for the general welfare of the blind in Great Britain, the British Empire, and other countries, together with general information on legislation, provision of embossed literature, charitable agencies, a bibliography, and other matters likely to be useful to the worker for the blind.

HOME HYGIENE AND CARE OF THE SICK. Jane A. Delano, R.N. American Red Cross Textbook. Fourth Edition, Revised. Philadelphia: P. Blakiston's Son and Company, Inc., 1933. 391 p. Ill.

A comprehensive textbook on personal hygiene and home care of the sick and well, revised to include the most recent available statistics and accepted theories regarding the prevention and control of communicable diseases along with the much needed emphasis on good health. Particular attention has been given to the infant and preschool child, and added material in the field of mental health greatly augments the value of this handbook. The style of presentation is readable and easily understood by the average person without medical training, and the material is so arranged as to be immediately accessible for reference.

Contributors to This Issue

Dr. William Campbell Posey, whose *Hygiene of the Eye* has been so widely used, will be remembered by readers of the REVIEW for his article on "The Evolution of the Cataract Operation." He is an enthusiastic chronicler of ophthalmic history, and is co-author of *The Wills Hospital of Philadelphia*, a record of one hundred years of ophthalmologic progress.

Miss Mary Emma Smith, R.N., is director of nursing activities of the National Society for the Prevention of Blindness.

Dr. C. E. Rice, surgeon in the United States Public Health Service, and medical officer in charge of the trachoma field service, with headquarters at Rolla, Missouri, contributes another interesting account of trachoma work in the United States.

Miss Harriet E. Yallowley, who is teaching in the elementary school system in Newark, New Jersey, took the summer course of training for sight-saving class teachers last year at Teachers College, Columbia University.

As special consultant for the National Society, **Dr. Colman W. Cutler,** member of the Board of Directors, generously gives much of his time to interpreting for lay understanding medical knowledge on ophthalmic subjects.

Among the book reviewers: **Dr. Edward Jackson** is consulting editor of the *American Journal of Ophthalmology;* **Dr. Harry Vanderbilt Würdemann,** practising oculist in Seattle, is the author of *Injuries of the Eye;* **Dr. John N. Evans,** director of research at the Brooklyn Eye and Ear Hospital, needs no introduction to readers of the REVIEW.

Eye Hygiene at Home and at Work

Walter H. Snyder, M.D.

THE loss of vision from early negligence is appalling, says Dr. Snyder. In industrial eye accidents, the first treatment that is given an embedded foreign body often determines what the disability will eventually be

FEW people stop to realize how frequently unnoticed eye symptoms or overlooked incidents involving the eyes may crop up later in life and form the underlying source of eye difficulty in middle age. Many cases of apparently sudden eye disintegration trace their origin to factors occurring early in life. Some of these factors are obvious; others are truly subtle, eluding even the perception of science.

Parental Rôle Important in Eye Hygiene

The development of preventive medicine can do much to insure good eyesight throughout life. It seems strange, therefore, that more attention has not been paid to the prevention of undue wear and strain upon the eyes. The dentists, it seems, have been able to wage a most successful campaign for the prevention of tooth disorders, despite the fact that dental prophylaxis is a relatively recent development. The unwillingness of the average parent to have his child properly examined by an ophthalmologist has contributed to the lagging of eye hygiene. Oddly enough, there are still people who believe that buying a pair of glasses in the five-and-ten-cents store, the general store, or the town jewelry shop, is sufficient eye hygiene. It is largely up to the family doctor to disillusion them of this fallacy. It is largely up to the medical profession, through its public utterances, to educate the community in proper care of the eyes.

The first four or five years of a child's life are fraught with the

greatest dangers to the eyes. Occasionally the ophthalmologists may be to blame. Some of them tell mothers who consult them that the children are not doing their eyes any particular harm when they string beads, draw, and do fine work for hours at a time. Fortunately, kindergarten schools have led the way in substituting more suitable activities. Fourth of July celebrations, too, have taken tremendous toll. It seems almost incredible that parents should permit their children to have the modern high explosive crackers and fireworks which may blow off their fingers and blow out their eyes.

Family Physician's Responsibility

Carelessness of children's welfare is a terrible indictment against our era. Even in the schools, very little impression has been made upon architects who design the lighting facilities of the rooms or upon those responsible for the seating arrangements. This disregard of those precious organs—the eyes—appears to be inherent in human nature. A walk through a general hospital will find half the convalescent patients lying down, reading for hours at a time, in spite of the strain on the eyes. Even the doctors seem not fully aware of the dangers of this and permit patients to while away their convalescence in this fashion. I feel that the general practitioner is partly responsible for this indifference to the precious sense of sight. Often I am told by children that when the family physician was consulted he said they would outgrow their eye difficulties and advised that nothing be done at the time. This too frequently delays proper care until the early adolescent years and permits a squint, for example, to develop into a condition difficult or impossible to correct except cosmetically.

To those who are checking up constantly on adult and late adult eye conditions, the loss in vision from early negligence is appalling. We find adults who never recovered eye health after an attack of measles or scarlet fever. When questioned, they say they were kept in a dark room for a few days, but, within a week, took up their usual school work. It would probably have been better for them not to have used their eyes for a month or six weeks. The ophthalmologist rarely is consulted at this stage and must depend upon the family physician or internist to carry out

remedial directions as to the use of the eyes after the exanthema. A child can soon overcome the lack of schooling, but never the handicap of poor vision. These children, as they approach early adult life, find themselves unable to do sustained eye work without headache and discomfort, much of which could have been avoided if they had had attention in early years.

Proper Use of Glasses

Frequently, if children needing them wear glasses during the first ten years of life, they can lay them aside later, with the satisfaction of knowing that the eyes have developed and can stand the rigors of modern life. As to whether glasses should be worn constantly, there is a difference of opinion. However, there is an increasing feeling among ophthalmologists that glasses should be worn constantly, especially by myopic children. I believe this to be excellent practice and its good results have been verified in many people who, at the ages of fifty to sixty, have a capacity for doing any amount of eye work.

Except in one or two of the larger cities, it is quite common to find that glasses are not in proper position mechanically before the eyes. The present tendency seems to be away from pince-nez, in favor of spectacles, which is certainly a wise trend for fashion to take. There are a few people who can wear pince-nez comfortably; but, with many, the smallness of the bridge of the nose and protrusion of the eyeball make the glass change its axis with every step the individual takes. Sunglasses, which are used for protection from bright light, should always be of a subdued color, such as London Smoke, rather than blue, purple, or yellow.

It will be many years before we get over the bad effects of the financial depression. Eyes have suffered, not only through the occurrence of increased general physical debility, but also because of the fact that new glasses have not been fitted when they were needed, nor glasses changed when necessary. Both teeth and eyes are neglected during times of financial strain and, in both instances, such neglect early in life leads to irreparable damage in later years.

Industrial Life Takes High Eye Toll

Obviously it is cheaper in the long run to prevent eye accidents than to pay compensation and make up the loss in time and effi-

ciency. It seems almost inexcusable, therefore, that employers overlook any possible safeguard, especially since the eye is one of the few organs in the body which has suffered in the changes of modern industry. Before the era of mass production, most eye losses were caused by gunfire, discharges from blasts, and, occasionally, from flying foreign bodies in machine shops; but, with the advent of high-speed tool steel, which will retain its temper while at white heat, and with rapidly turning lathes, the number of foreign bodies which penetrate the globe is enormously increased. Unfortunately, many of these metallic materials are non-magnetic and it is more difficult, therefore, to remove them from the eye without doing considerable damage.

A recent state campaign indicates that while there has been a reduction in the number of accidents to workers using hand tools, it has been offset by a vastly increased number of accidents to machine tool workers. The use of abrasive wheels, emery, carborundum, etc., together with the polishing materials, also has increased the number of accident cases having minute foreign bodies imbedded in the cornea. Mechanical accidents, then, have caused practically all of the increase in blindness of industrial origin in the last twenty-five years. Electric welding—now become a much used technique in industry—has also taken its toll of sight. Unless the operator's eyes are carefully shielded—and many of the masks are insufficient protection—the lids may suffer a burn and blind spots may develop in the retina. It has not been realized that bystanders, especially those working in proximity, may suffer almost as much as the operator.

The electrical discharge in blasting has materially lessened one danger to the eyes. The old-fashioned lighting fuse and black powder frequently would not burn, or burned so slowly that, when investigated, they went off and ruined the eye of the employee.

Special Recommendations for Industry

None of the occupational diseases of industry affects the eyes to any extent. Poor lighting is responsible for some eyestrain but the mechanical lathe which holds its own tool and finishes the job before stopping has relieved machinists of much eyestrain. Two factors in present-day industry to save the eye should be, first, a

better grade of goggles which will belong individually to the man using them. When goggles are left at the wheel to be used by anyone, they are apt to be greasy, badly fitting and, in fact, seldom used. The goggles should be ventilated. It should be the wearer's duty to keep them clean.

Two railroads in the United States have bought goggles at their own expense, for the men who were subjected to eye dangers, and both of them report that there is a satisfying decrease in the number of blind eyes during the year. The cost of prevention has been absorbed by fewer injuries.

The second factor is: the attitude of industrial commissions toward those taking care of diseases of the eye. The Ohio Industrial Commission will not pay the general practitioner at the same rate as the specialist for treating an injured eye, but it has not yet forbidden the general practitioner to do eye work in cities and towns where specialists are available. Eventually, the industrial commissions and self-insurers under the compensation laws will find a marked lessening in expense and better treatment by limiting the care of the eyes to properly qualified specialists. A great many of these cases, which would have been returned to work in a few days without loss of vision if properly treated, are so unintelligently handled that there is a loss of vision, varying in degree from a minor disability to total economic loss. The workman in the outskirts of the city who gets a foreign body in his eye may be told by his foreman to go to some doctor who lives nearby, where he is not treated as intelligently or scientifically as by a specialist in this line of work. Whether it would be right for the Commission to refuse permission is a matter that is open for discussion, but cases that are treated by competent specialists suffer much less disability than those treated by the physician who may live immediately adjacent to these shops.

In mass production, where much of the material is produced by automatic machinery, there will always be the danger of flying particles from one machine hitting an operator who may be as far as thirty feet from the machine from which the foreign body comes. It would seem that there could be a set-up of machines in irregular intervals that would lessen this danger, or that a screen of plate glass could be interposed between these machines or around them

to prevent accidents. On the railroads, there have been fewer disabling accidents since the enginemen and firemen wear goggles. In repair work, the hacksaw has superseded the cold cut and sledge and has lessened accidents from this direction.

How Industry Can Reduce Eye Casualties

The factory hospital of industrial plants is a factor considered in efforts to reduce eye losses. The first treatment that is given an embedded foreign body often determines what the disability will eventually be; in the smaller concerns employing, say, fifty men or less, these cases are not so likely to be properly treated as in one of the larger shops.

One rule which I think should always be enforced is that any man grinding a tool on an abrasive wheel, unless the wheel is amply protected by plate-glass guards, should himself wear goggles. Another regulation to which I think there should be no exception is that any man who has lost the vision of an eye should wear a glass on the remaining eye for protection from foreign bodies, even though no correction is needed in the glass itself. I have had a few cases where the second eye was lost in the same manner as the first, when the loss of both eyes could have been easily avoided by the simplest kind of glass, as the particles are so small they do not break the lenses. It is interesting to note how few eyes have ever been injured by broken glass from the spectacle lens.

The safety-first program in schools should include instructions against the use of files and very highly tempered steel for punches, when they are not intended for that purpose, and also against the use of cheap cast-iron hammers which are often thought to be good enough for household use. In industry, hammers of lead or copper should be supplied and battered punches ground off or replaced.

Eye Examinations for Workers

Refraction for tool makers, die sinkers and machinists should include a regular examination and proper supervision to increase the ability to do proper work. A trained employee has a money value to his employer and should not be subject to the ordinary

turnover of labor. The present financial depression has proved that a group can be given special care at a lower fee, if it is not subject to loss in collection. This type of man is intelligent enough to appreciate the value of his eyes, the most necessary tool in his occupation. With proper protection from accidental injury; with care when accidents occur; with advice as to the prevention of disease which may cause visual loss, including examination for glasses, the total loss of vision in modern mechanized industry could be reduced to the minimum.

Points for Compensation Administration

To obtain the best results for the employee and the employer and the most economical administration of any agency of compensation, the following suggestions are made:

1. Every employee should be examined before engagement and tests made to determine:
   A. Whether there is any disease present which should be treated.
   B. Whether there is any condition which will be made worse by the employment sought.
   C. Whether by fitting of glasses the efficiency of the employee can be increased.
2. The employer, whether insured in the regular compensation act or a self-insurer, should see that the injured men are referred for treatment to competent oculists, and not to someone who is simply friendly toward the boss or immediate supervisor of the employee.
   This latter is very important, as poor care means increased expense to the state and taxpayer for compensation, lessened production for the employer, and increased disability to the employee for which no money can pay.
3. The employer should consider it a proper charge in the cost of his product to supply men with shatterproof glasses in the shape of goggles, and with proper service to maintain their eyes at the highest efficiency.

From forty years of observation, I feel convinced that very much better service can be given to the employee and to the state by a carefully considered plan in which only men of proven competence

would care for these cases. The employee, however, has a duty to report from time to time any change in his vision; tests, if properly supervised, can be made for a few cents per man. He must also be willing to wear protective goggles—which he is not willing to do now—but he has a right to expect them to be personal and not used by the entire force. Certainly we are not doing the best we can from an economic point of view, and a truly economic point of view includes human consideration.

Educational Results in Those with Weak Vision

Dr. M. Meissner

An Abridged Translation from the German*

By Dr. and Mrs. E. V. L. Brown

I SHOULD like now to reconsider the total number of our pupils and analyze this from an entirely different standpoint. Fifty of the 79 pupils are entirely blind; 8 pupils have so little vision that they are not suitable for instruction as persons with "weak vision"**; 21 pupils have weak vision and are suitable for this special education. The condition will be clearer if stated in percentages: 63.3 per cent are entirely blind; 10.1 per cent have such a small remnant of vision that they can only be educated in a blind institution; 26.6 per cent have weak sight.

Reports of this kind from other institutions are not known to me, yet according to the opinion of specialists the number of weak-sighted is even greater in other institutions than in our own. This number is especially great in American institutions for the blind.

We stand fundamentally on the principle that these 26 per cent weak-sighted individuals should be considered as seeing persons and that it is most expedient to remove these children from blind

* M. Meissner: Ophthalmological Matters in a Blind Institution. *Transactions* of the Vienna Ophthalmological Society, April 4, 1932, pp. 70–80, published by S. Karger, Karlstrasse 39, Berlin, Germany, 1933. (The translation covers pages 71 and 77 to 80.)

** This group corresponds closely to children admitted to sight-saving classes in the United States and myope classes in England. (Translators.)

Translators' Note.—Although this article was originally read before the ophthalmologists of Vienna, it is of interest to all students of the causes and prevention of blindness. The following comparison between causes found in a blind school for Jewish children in 1911† and causes found by Meissner twenty-one years later in the same institution is especially valuable because: (1) the same classification is used, and (2) the diagnoses were made in the metropolitan area which for the past two genera-

† P. L. Silberstein, Wiener Klinische Wochenschrift, No. 40, pp. 1396–1400, 1911.

institutions and educate them in special schools for the weak-sighted. Unfortunately, this must remain only a fervent wish for the time being. Present economic conditions make the costly establishment of new schools and institutions quite impossible, not only in our country but also in most other countries.

If we separate the weak-visioned of the blind institutions into a special group and subject them to a special form of education, it is only because it is a necessary measure—one which we consider unavoidable and most expedient. These are only temporary measures, which we hope will be followed by better methods of instruction, with improvement of general conditions.

It was my privilege to make a previous report concerning the nature of this teaching. The training of the weak-sighted of our institution rests in the trustworthy hands of Dr. Loewenfeld and Fräulein Seif. The essence of the teaching has remained the same as then described. The fundamental principle is to bring to the weak-sighted the consciousness that they can see and to urge them to make the earliest possible use of their visual organs. It was definitely demonstrated that the special visual exercises, concerning which I reported at that time, are necessary for only a short period. In the blind school the classes are small, only six to ten in a class; individual treatment of the pupil is therefore possible and, whenever necessary, the teacher can urge the children

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Translators' Note (Continued)
tions has been perhaps the most famous in the world for intensive study of eye conditions.

I. *Eye Diseases and Injuries*	*1911*	*1932*
Ophthalmia neonatorum	6	1
Trachoma	5	1
Glioma	—	1
Keratitis	—	2
High myopia	—	4
Juvenile glaucoma	—	1
Detachment of retina	6	—
Eye injuries	4	9
Other acquired eye diseases	14	—
	35	19

II. *General Diseases*	*1911*	*1932*
Measles	9	3
Scarlet fever	6	3
Smallpox	10	4
Typhus	—	1
Meningitis	10	9
Hydrocephalus	3	3
Head injuries	2	—
	40	23

III. *Congenital Anomalies*	*1911*	*1932*
Anophthalmus	1	1
Cataract	12	17
Microphthalmus	—	2
Retinitis pigmentosa	4	3
Aniridia	—	1
Optic atrophy	4	8
Albinism	1	—
Buphthalmus	1	—
Retinal and choroidal changes	2	—
	25	32

Undetermined: 1911—0; 1932—5. Total: 1911—100; 1932—79.

to use their eyes. This is seldom necessary because, for the most part, the children use their eyes most zealously of their own accord.

The main task in the education of the weak-sighted is the instruction in the reading and writing of ordinary print and handwriting. The method of instruction has remained essentially the same. In keeping with our basic principle, of the nearest possible approximation to the ordinary conditions of life, we now make as little use of the aids especially devised for the weak-sighted as possible. The so-called Hamburg heavy-ruled copybooks are necessary at first. We now prefer to allow the child to write without lines, as it has been shown that following a line and the effort needed for the formation of letters requires a doubled exertion. Only when the technique of writing has been mastered may one return to following lines. Along with this it has developed that it suffices for the most part to make the beginning of the line somewhat wider. It also turns out that the upper border of a sheet of paper placed beneath the sheet to be written upon serves well as a line marker.

Some children prefer to write on the lined paper, others prefer to write on paper without lines; likewise, many children prefer to write with ink, while others use only pencils. No kind of compulsion is used and each individual child is given his choice.

Large print especially invented for the weak-sighted was used at first. Later, however, in adjusting instruction to everyday life conditions, we used type which corresponds to normal print. It is surely our main object during the process of education to make the weak-sighted as nearly like sighted persons as possible.

I should now like to demonstrate by means of specimens of writing a partial result of our method of instruction. In the reproduction of handwriting accompanying this article, you will observe

Author's Note.—"In response to a question from the translators I wish to state that it is now five years since extensive use has been made in our classes for weak-sighted of ordinary sized print; the educational results have continued to be as good and satisfactory as when my 1932 article* was written and I can still recommend it, unreservedly."

* M. Meissner: Über den Unterricht von Sehschwachen in der Blindenanstalt. *Zeitschrift für Augenheilkunde*, Bd. 73, pp. 56–61, 1930.

that the view expressed by me before the inception of this teaching of weak-sighted is vindicated—namely, that not the grade of vision alone is determinative of results but that the intellectual capacity and the good will of the individual are of very special importance. It is not true that those who see the most also learn to write easiest or best; definitely better results could be obtained with children with much less visual acuity, but who are more intellectually keen, than with children who have simply relatively good visual acuity.

Many specimens of writing of children with a visual acuity of counting fingers at 3.5 to 6 meters can scarcely be told from the writing of normally sighted pupils of the same age. You can also see that intelligent children with a vision of counting fingers at 1.5 meters may produce fairly good handwriting.

How very important intelligence and good will are can be seen from the samples of writing of totally blind children. In times past the blind have been made to write their own name in normal letters. But Dr. Loewenfeld went beyond this and attempted to teach an especially gifted and manually dextrous girl the other

Author's Note.—"Today I had opportunity to re-examine 12 of the 21 pupils who have been taught for five years on account of weak sight in the Institute for Blind Children. In 50 per cent I found an improvement of the vision, but I would not put too much stress on this point. The essential feature of the success is that the systematic instruction of the weak-sighted children produces a psychic change in the children, because they are transformed from blind persons to seeing individuals and they become capable of utilizing their feeble remnants of vision to a surprising degree. In the same institute teachers have obtained promising results with painting and drawing.

"As a better illustration of the results obtained in the instruction of weak-sighted children in writing, I enclose a few samples of writing by weak-sighted and completely blind children in the Blinden-Institute, Hohe Warte, Vienna. These classes for the weak-sighted children are conducted there by Mrs. Stein-Seif. The text of these samples submitted herewith has been composed by the children themselves, without any influence from their teacher. It contains interesting details of the attitude of the children in regard to the method and advantages of the instruction." *

* With the above letter (May 30, 1934) Dr. Meissner enclosed nine samples of handwriting of weak-sighted pupils and four of blind pupils. Of the nine, one pupil, an 18-year old, had 7/200 vision, four pupils (8, 13, 18, and 19 years old respectively) had 10/200 and four pupils (aged 13, 14, 15, and 15, respectively) had 20/200 vision.

The Translators.

Herbert Allenstein.

Ich bin Schüler im Blindeninstitut auf der hohen Warte und lerne seit 4 Jahren die Schwarzdruckschrift. Zuerst habe ich nur mit Blei geschrieben, jetzt aber schreibe ich alles mit Tinte. Wir haben 2 Schreibstunden in der Woche. Außerdem müssen wir oft Aufgaben für die Stunden bringen. Mir macht weder das Schwarzdruckschreiben noch das Lesen große Mühe, und ich ziehe es dem Brailelesen und -schreiben vor.

Translated, the above reads:

I am a pupil in the Blind Institute on Hohe Warte and have studied ordinary black print four years. At first I wrote only with pencil; however, I now write everything with ink. We have two writing hours a week. Besides this we often have to do other tasks for three periods. Neither the writing nor the reading of black characters gives me much trouble and I prefer it to Braille reading and writing.

HUBERT ALLENSTEIN (age 13, vision 20/200).

A sample of the handwriting of a pupil the Blindeninstitut auf der Hohe Warte. Vienna, Austria, taught to read ordinary print instead of sight-saving class print.

letters as well. This experiment succeeded in a surprisingly short time and much more easily than was expected. It is notable and interesting that in the writing of three entirely blind pupils, taught at the same time and in the same manner by the same teacher, the handwriting of each individual had its own special characteristics.

From these results with the blind we do not urge that all blind pupils be taught normal writing. Yet it does not lack social significance that in especially adapted cases the blind can be placed in contact with the world about them through the use of everyday handwriting.

The specimen of handwriting which we have presented can show you only a partial result of our method of instruction. The most essential thing cannot be demonstrated—that is, the transformation of the blind person into a seeing one. This transformation, when brought to the consciousness of the weak-visioned one, formerly placed on exactly the same plane as a blind person in his instruction, induces a complete metamorphosis in his entire nature.

Our instruction of the weak-sighted has now covered a period of about three years. Our basic principle was to make use of the simplest means which correspond to everyday life. It has been shown that by our simple methods results were to be obtained more quickly and at less expense than with other methods. What we strove for we have accomplished. We have succeeded in increasing the self-confidence of our pupils, made them better satisfied with their fate and, in so far as possible, made the fight for existence easier. As our method can be undertaken at any time and anywhere, and because it is easily carried out and does not require costly new equipment or construction, we feel justified in recommending it further.

Prevention of Blindness in Hawaii*

Margaret M. L. Catton and Dora Zane

IN previous issues, we have published accounts of what particular states are doing to prevent blindness and conserve vision; we continue the series here with an outline of activities in Hawaii, a territory which aspires to statehood

FOLLOWING the pattern in the evolution of the movement for the prevention of blindness which is noted in every similar growth, the move to prevent blindness in Hawaii came as a natural sequel to the efforts to ameliorate the condition of those already blind. Before 1914, there were no institutions or facilities for the education of handicapped children; following the opening of a school for such children, in 1914, the Island facilities were expanded until the Territorial School for the Deaf and Blind came into being, providing not only for the education and vocational training of the handicapped children, but also for the training of blind adults.

Early Steps in Prevention

To prevent needless blindness from ophthalmia neonatorum was one of the chief reasons for the introduction in 1927 of a legislative bill to license midwives. It was very difficult to get favorable reception for such a bill. Midwifery is a practice so common among the lower economic groups as to be almost a tradition; furthermore to many the interpretation of the bill meant not only the prevention of services by midwives, but also by members of families or kindly neighbors to women who could not, or would not ask for trained obstetric care. Although couched in terms as would not prevent an expectant mother from having the help of a mid-

* Excerpted from a report, "A History of Services for the Blind and the Prevention of Blindness in Hawaii."

wife, or other person, provided a fee was not paid for delivery, the bill failed to pass in both the 1927 and 1929 sessions of the Legislature.

The compulsory use of specific drops (silver nitrate 1 per cent) was made a Board of Health regulation on May 4, 1930. To date, some instances have been reported of the use of argyrol instead of the specified drops, but generally speaking doctors and midwives are complying with the law.

Registration of Midwives

The third and last attempt to get legislation to govern the practice of midwives was made during the 1931 session. Even with the added support of the League of Women Voters and the Committee for the Blind, it again failed. The difficulty was so great of enacting a law which, to many, savored of discrimination, that it was finally decided to amend Section 1218 of the 1925 Revised Laws of Hawaii to read as follows: "All hospitals, lying-in institutions, physicians and midwives, shall register with the Secretary of the Board of Health within thirty days after taking effect of this act." Thus by making it mandatory for licensed doctors and hospitals as well as midwives to register with the Board of Health, there could be no distinction, and so the necessary regulations governing the practice of midwives were made possible. Defining the practice of midwifery as such assistance as may be rendered to a woman in normal childbirth by any person, for compensation, the Territorial Board of Health made rules governing their practices, of which the following is a summary:

> All applicants shall make written and sworn application for registration on Board of Health forms with yearly registration.
>
> Shall be free from all dangerous and communicable diseases, of good moral character, and at least 21 years of age.
>
> Shall produce satisfactory evidence of having graduated from a recognized school of midwifery; of having successfully attended at least 20 cases of labor under the supervision of a licensed physician in the Territory; of having had the care of at least 20 mothers and newborn infants during a lying-in period of at least 10 days in each case.
>
> Shall conform to the regulations set by the Board of Health

regarding personal cleanliness of midwives in attendance, and shall carry and have opened for inspection at all times, the necessary equipment required by the Board of Health.

Shall conform to the regulations of sanitary practices as required by the Board of Health in the handling of births and with the compulsory use of silver nitrate in the eyes of the infants.

Other Board of Health regulations relating to the care of the eyes are those making:

Gonorrheal ophthalmia reportable, and isolated, until discharge is bacteriologically negative.

Trachoma reportable and excluded from school until attendance is recommended by physician.

Follicular conjunctivitis reportable but school attendance allowed, if under proper medical supervision.

Acute epidemic conjunctivitis reportable and excluded from school during period of inflammation and discharge.

National Society for the Prevention of Blindness

With a conviction of the necessity of preventing loss of vision, as well as ameliorating the sufferings of the blind, Mrs. Mabel V. Lacy, principal of the Territorial School for the Deaf and Blind, interested the League of Women Voters, who, in turn, requested the Department of Public Instruction and the Board of Health to invite the National Society for the Prevention of Blindness to take the initiative in testing the vision of preschool and school children in Hawaii. In response to their letters, Mrs. Winifred Hathaway, associate director of the National Society for the Prevention of Blindness, was sent to Hawaii in January, 1932. Preliminary arrangements for her visit were made by a committee representative of the Territorial Board of Health, the Territorial Department of Public Instruction, Parent-Teacher Associations, League of Women Voters, Free Kindergarten and Child Health Association, United Welfare Fund and other educational and civic organizations. Dr. P. S. Platt, director of Palama Settlement, was chairman. Mrs. Hathaway spent about nine weeks in the Territory, and visited Oahu, Maui, Hawaii and Kauai. She commented on the lack of facilities for eye hygiene in a community (Honolulu) so well organized, otherwise, to care for the health of the preschool and school child. She noted three outstanding eye

conditions: strabismus (cross-eyes), acute conjunctivitis (pink-eye), and myopia (near sight), with evidences of styes, granulated lids, eyestrain, etc., and some trachoma. A further pertinent comment was the lack of educational facilities for children not blind but with definitely defective vision.

During her sojourn Mrs. Hathaway gave demonstrations of the visual acuity testing of young children to various groups, including parent-teacher organizations, physicians, nurses, teachers, social workers and student groups. She drew attention to proper lighting of school buildings and to the need of adequate illumination without glare. Mrs. Hathaway's study, "The Eyes of the Children of the Territory of Hawaii,"* may be summed up in her recommendations:

Establishment of eye clinics in general hospitals;

Establishment of well staffed ambulatory clinics for rural communities;

Concentrated effort be made to discover the sources of communicable eye diseases and to eliminate them;

Preliminary eye tests be given to preschool children and school pupils as a rough screening to discover those who need ophthalmological care;

The teaching of eye hygiene be included as an integral part of a well regulated health program;

Adequate illumination without glare be provided for all pupils at school, and that they be encouraged to try for like conditions in the home;

Sight-saving classes be established for the education of partially seeing pupils in elementary and junior high schools and arrangements for pupil readers for such students be made in the high schools.

Eye Medical Social Service

As a result of the interest of the National Society for the Prevention of Blindness, a scholarship was offered to a medical social worker who could meet the following qualifications: born in the Territory, an university graduate, a graduate of a school of social service, and with several years of experience in the field of medical social service. Mrs. Dora Zane so qualified, and was granted a leave of

* A copy in full may be seen at the Social Service Department, The Queen's Hospital, Honolulu, T. H.

seven months by the Hospital Social Service Association of Hawaii from her work in social service at Kauikeolani Children's Hospital. Going to Boston, she took an intensive course under the direction of Miss Amy G. Smith, chief of Social Service at the Massachusetts Eye and Ear Infirmary. In addition to her training in Boston, Mrs. Zane had observation periods with the New York and Missouri Commissions for the Blind. Upon her return to Honolulu she had to meet the further condition of affiliation with the Hospital Social Service Association of Hawaii—this because it was considered advisable to be affiliated with an established organization in medical social service.

As all the out-patient work in the city of Honolulu is done at Palama Settlement (a medical-recreational-educational center), the medical social eye worker attends its eye clinic, co-operating with the social service department by taking over responsibility for patients whose eye conditions need follow-up or case work.

Despite the eye clinic, Palama Settlement cannot take care of the number of children found in need of ophthalmological care. To meet this problem, an auxiliary refraction service has been started with the co-operation of ten eye specialists. After a general examination and a recheck on the vision, the patients found to have 20/40 vision or less are referred to the social worker, who asks the parent or guardian to name a specialist to whom to send the child. If there is no preference, the worker refers the child to the ophthalmologist next in order from the list of those who have consented to give free care to children referred by the clinic. The worker also assists the patients to obtain prescribed glasses, treatments, educational adjustments, etc.

The Territorial Committee for the Conservation of Sight

The National Society for the Prevention of Blindness was responsible for further sound organization. In order to co-ordinate Territorial with national activities Dr. F. J. Pinkerton was elected, in 1933, a member of their advisory council. Knowing, too, that without unity there must needs be overlapping and duplication, the National Society asked that the Governor, through Dr. Pinkerton, center the work for the blind and sight conservation in one committee, representative of all interests, and having guberna-

torial sanction; so was born on January 6, 1933, the Governor's Committee for the Conservation of Sight.

The first problem was to procure means to carry on the workshop for the blind and to initiate and support social service in behalf of sight conservation. To this end the Committee drafted a bill for an appropriation of $25,900 for the biennium 1933–1935 to be presented to the Senate of the Legislature then in session. Because of the serious situation confronting the Legislature in meeting the Territorial budget for existing activities, it was impossible to get such a large sum for a new service, however important. The whole project might have lapsed but for the Hospital Social Service Association of Hawaii. Mrs. A. L. Andrews, first vice-president of the Association and a member of the committee which originated the School for Defectives in 1913, asked for a drastic revision of the bill to cover only such items as equipment for the shop for the blind, current expenses, and salaries for shop manager, shop instructor and social worker, respectively. Inadvisable to introduce it as a new measure, it was, with President Crawford's consent, included and passed in the budget of the University of Hawaii. Thus the work for the blind and conservation of sight became an extension function of the University.

Under the University's aegis, the Governor's Territorial Committee for the Conservation of Sight continues to function in an advisory capacity; Dr. Pinkerton, as chairman, is medical adviser; the Lions Club supervises the workshop; and the Hospital Social Service Association of Hawaii directs eye social service, for which the Queen's Hospital grants office space to the social worker. The social worker's duties include the giving of lectures and demonstrations on sight conservation at the University of Hawaii, at Teachers College, in the public schools, and such medical social service as presents itself in connection with clinic or hospitalized patients. Reports and accounts are submitted to the University of Hawaii through which salaries and expenses are paid. President Crawford asked for close co-operation between the two units—the workshop and conservation of sight.

Although the time has been short, a definite program has been established in putting sight conservation in the school system. Vision testing was inaugurated in the public schools in September,

1933. The technique of testing was demonstrated to the school nurses, who, in turn, demonstrated it to the teachers. As a result of the first school-wide vision tests, it was found that there was a sufficient number of children in Honolulu with seriously defective vision to warrant the establishment of a sight-saving class. This class, the first in Hawaii, will open in September.

Another step in furthering the message of sight conservation in the school system was the inclusion in the summer course at the University of Hawaii of a series of lectures on medical, social and educational aspects of sight saving, given by prominent ophthalmologists in Honolulu, for teachers and school nurses.

To the Future

Here we may close the first volume of our history of service in behalf of the blind and prevention of blindness in Hawaii. Not always has there been activity; there were intermittent and sometimes long periods of quiescence but the light has never failed. One can trace throughout a flame, however dim at times, of purpose and constancy.

The movement began with the general, it took on the specific: it began with all defective children, it concentrated in the deaf and blind. It was interested primarily in minors, it grew to include adults. It was first entirely the concern of socially minded laymen, it became also that of professionals. It was entirely civil, it is vested with statutes. It was local, it became territorial. It was territorial, it became national. At first concerned only with amelioration, it grew to see the importance of prevention. In the Department of Public Instruction, it later became a function of the University of Hawaii. And so we close this volume to be opened again as new chapters are added, chapters of continued service in behalf of the blind and surely of what is more fundamental—prevention of blindness.

Saving Your Eyesight

E. H. Cary, M.D.

THE eye cannot be considered as an isolated part of the body; the oculist, in periodic examinations of the eye, has an opportunity to discover early evidences of high blood pressure and other symptoms of disease

THE function of sight is the most important special sense inherited by man. The knowledge we have gained through the study of this organ includes its relation to the body, because we see in the eye many characteristic changes which we recognize as evidence of disease—either local in origin or from systemic infection involving, more or less, the whole body.

Disease of the eye may be seen on its external surface or it may be necessary to look into the eye. When such examinations disclose abnormal changes occurring in other organs of the body the oculist, while attempting to save the sight, usually directs his patient to the family doctor, who co-operates in the treatment to remove the cause

The competent ophthalmic physician has the opportunity, through periodic examination of the human eye, to observe the early evidences of high blood pressure and other symptoms of disease which, if seen in time, are amenable to treatment. Many who are infrequently examined and who wait for failing vision to occur before seeking advice often lose not only their vision but many years of life.

Eye Modifications May be Inherited

The old adage, "An ounce of prevention is worth a pound of cure," more readily applies to the eyes than any other part of the body. From the cradle to the grave the eyes are subjected to many trials and, may I say, tribulations. We are born into the

world with definite tendencies and, often, frank inheritances; and for this reason the marriage ceremony should not be concluded without due regard to some of the basic causes which can lead to inherent weaknesses on the part of this unique organ.

Long before the birth of a child, modern prenatal observation and care make it possible for the doctor to prevent many tragedies by instituting active and consistent blood treatment of the mother, when found necessary. In a large percentage of cases, such treatment protects the newborn child from syphilitic infection—a scourge of humanity. Treatment of the mother in the majority of cases protects the child from the ravages of this disease, which may cause blindness or impaired sight as well as loss of hearing.

Without the treatment of the mother, if she be infected, infants are frequently stillborn; if the infant lives, he may not manifest any evidence of disease until young childhood is reached. Then one particular disease known as interstitial keratitis, a disease of the cornea, may appear. In this disease, the clear outer structure of the eye, through which the iris and pupil may be seen, becomes cloudy and finally the vision is shut out. Fortunately, the wise family doctor and the ophthalmic physician recognize this disease and its cause and have the cure at their command.

Another inherited tendency is the size and shape of the eyeball. Who has not observed a family whose members all wear glasses? And wisely so—their nervous system as well as their visual acuity requires the aid of properly fitted glasses. Persons with normal eyes, when the eye is accurately measured as to its refractive status, constitute only four per cent of human beings. Nature has provided, however, a mechanism of accommodation which aids in bringing parallel rays of light to a focus on the macula, where central vision is located. The farsighted person, whose eyeball is shorter than normal, is the one whose vision can be helped by the muscular action within the eye, which makes it possible for the crystalline lens to become more convex, thereby converging the parallel rays of light more accurately on the retina.

Astigmatism, as a rule, is due to an uneven curvature of the cornea or of the crystalline lens. There is a difference in the horizontal and vertical meridians of the eye, preventing the light

from focusing on or near the retina. The retina is the photographic plate, or nervous sheet, on which light vibrations stimulate nervous impulses which travel through the visual paths of the optic nerve to a part of the brain where images are recorded. Headaches, nausea and irritability are usually increased when there is astigmatism.

Reflex disturbances are more or less individual; therefore the lives of some persons are made quite miserable, while others who are affected may not immediately feel the need of eye protection, continuing to use their eyes to the point of eyestrain, producing damage which is observed later in life.

Before leaving this subject, it is well to say that most children, when born, are farsighted but, as the individual develops, the eyes also grow. Unfortunately, some eyes continue to elongate and they become nearsighted. Persons with this tendency hold their reading matter nearer and nearer to the eyes as they continue in school. They soon find it impossible to see objects at a distance as clearly as do their little neighbors. To rectify this condition requires the best judgment of an ophthalmic physician because, in both instances, he must use medicine to relax, for a time, the action of the ciliary muscle so that he can know the exact refractive status of an eye as well as the health of its interior.

Oculist Considers Eyes as Part of Whole Body

Saving your eyes for the long pull through life cannot be discussed without reference to refraction and the great need for the ophthalmic physician, who is armed with knowledge and with the legal right to use those medicines which make it possible to analyze accurately the refractive status of the eye and, from this, to predicate its relation to other reactions of the nervous system.

We must also recognize a disturbed function of a marvelous organ, which cannot be given best attention when approached as an isolated part of the body but must always be considered as an organ which is affected through its own nervous mechanism, its own need to be in balance with its associated eye; this balance being most important if the individual is to remain free from evidences of eye weakness.

With a knowledge of the history of the child and its parents, the function of the ductless glands, and the health of the whole body, the ophthalmic physician is then able to prescribe for and co-operate in the treatment of the individual to save his sight.

Adverting to disease of the eye, it might not be objectionable to mention the observation of the great obstetrician, Credé, in 1881, who observed the prevalence of ophthalmia in the newborn, where pus streamed out of the eyes a few days after birth. Twenty-five per cent of all blindness was due to this cause. Credé suggested that the use of a silver salt immediately after birth prevented, in most instances, the occurrence of this terrible disease known as ophthalmia neonatorum. One would imagine that this information would have been readily accepted and used throughout the world, but it has required a most active educational campaign by the leaders in American medicine during the early years of this century to inform the people, thereby materially reducing the percentage of blind persons in our institutions.

The public has been made conscious of the cause and prevention of this disease; the intelligent attendants of mothers in their great trial and hour of triumph can protect the innocent and can narrow the incidence to an infinitesimal occurrence. As there are many germs involved in the production of this disease other than the gonococcus, which is the usual cause, eternal vigilance on the part of the doctor and nurse is the price of protection.

Eye Diagnosis May Save Life

We must not lose sight of the salvage of life by speaking of the saving of sight. Every mother who looks lovingly into the eyes of her infant, and sees a golden or yellow reflex of light from the interior of the eye observed through the pupil of the eye, should know that it may be one of the two conditions producing this appearance of the amaurotic cat's eye. Now, remember the yellowish reflex, for it will more likely be the result of a malignant tumor growing from the retina of the eye, and in such a case the earliest possible consultation with an ophthalmic physician is most desirable.

Eye Protection in Industry

The active campaign instituted several years ago to protect the eyes of workers from injury has borne fruit. Many thousands of eyes have been saved by the use of protective goggles. Many workers have learned to seek professional aid for the removal of foreign bodies from the eye. Many eyes have been lost due to ulceration of the cornea, the result of an infection following the improper removal of a foreign body by an amateur. Persons who have an infection of their tear sac, which causes the tears to stand in the eye, are particularly prone to a destructive ulcer of the cornea following the slightest injury to the eye.

Eyes in Midlife

Old age brings changes which frequently lead to loss of vision. If the crystalline lens becomes opaque or hardened as a result of age, a cataract is the result. Cataracts can be removed in an otherwise healthy individual with perfect results, restoring vision. Medicine does not help when the opacity is marked. On the other hand, if the eyeball is becoming tense, due to intra-ocular pressure, there are certain prodromal or early symptoms which are worthy of your notice. For instance, when an individual sees a halo around the light, with or without pain in the temple; or when his eyes seem to require repeated change of glasses and when the individual is over forty years old, he may be afflicted with early glaucoma. Any individual with such symptoms should go to an ophthalmic physician for a very thorough examination. This should include a carefully taken field, for these early symptoms are often accompanied by slight changes in the field of vision, justifying the diagnosis of glaucoma at a time when preventive measures are most effective. Glaucoma frequently leads to blindness, and all of such cases end in blindness if not recognized early and properly treated.

Throughout life, it must be remembered that the eyes are among man's best possessions, and deserve adequate care. Considering that ninety per cent of our vast knowledge of the eye has developed in the past fifty years, there is much to be hoped for in the prevention of blindness and saving of sight, provided the individual does his part.

The Sight-Saving Class as a Mental Hygiene Measure

Catharine A. Flanigan

EMOTIONAL adjustment as well as relief of physical strain is afforded children with seriously defective vision in sight-saving classes

SOMEONE has said, "There are no problem children; children are reacting normally to a problem environment." This is an excellent justification for sight-saving classes. The mental problems of these children are so definitely those caused, directly or indirectly, by an easily recognized problem environment. Emil Fries, himself partially sighted although with so little vision as to be classed by most people as blind, says: "Whatever peculiarities the blind may be discovered to possess are little more than the reactions of their condition on their consciousness. They have few characteristics, except those directly traceable to lack of sight, that others are without."[1] In speaking of the partially sighted children coming to a sight-saving class the above statement would be even more emphatically true; they have no characteristics that other children are without, but due to the very definite problems in their environment, certain undesirable behavior patterns may be fostered or intensified in them.

Of course, not all children who come to a sight-saving class are unhappy victims of their environment. Their reactions to their handicap may be very fine, having been aided by understanding and sympathetic parents and teachers. However, even these children may benefit so greatly by an improved physical environment that the adjustments are simpler. A brief description of the types of children found in a sight-saving class, and the vari-

eties of school experiences that form their background, may prove helpful in showing the problems the teacher has to recognize and try to modify or eliminate.

Children Eligible for Sight-Saving Classes

Children who are eligible for these classes are those with permanently low vision, those with progressive eye defects or diseases, and those whose vision may deteriorate under normal school conditions. They enter a sight-saving class ordinarily with one of three types of school history. First, there are the children who enter a sight-saving class after they have fought their way through several years of school work in spite of their handicap. They may have been successful at the expense of great nerve and eye-strain, or they may have failed once or many times. This late entrance may be due to the lack of previous opportunity because of the lack of a sight-saving class, or it may be that, because of inadequate medical examination, the parent or teacher has "just discovered" the cause of the strain or failure. The second type includes those children who, during their school life, suddenly develop an eye difficulty, due either to disease or accident. Third, we have those children who have had an eye difficulty since birth or early childhood and who enter the sight-saving class without previous school experiences.

Aids to Adjustment

That the sight-saving class offers very definite aids in the emotional as well as the physical adjustments of its children has been recognized by those coming in contact with its operation. However, this particular phase of its contribution to society has not been treated separately. There are, of course, innumerable books on the eye and diseases of the eye. Many people have also written on the definite relation between strain and eye difficulties. Outstanding among these is Dr. Kerr's book[2] in which he discusses the contributions that correct physical environment and methods of instruction can make to the care of the diseased or defective eye considered from a physical point of view. Physicians, educators and engineers have written on the importance of light, equipment, materials, and methods of instruction from a medical, a

physical, and a pedagogical viewpoint. We can also find many research and experimental reports on eye diseases, their history, causes, treatment, and their inter-relations with social conditions.

The majority of the emotional maladjustments of the child entering a sight-saving class are traceable to the problems of his physical environment in relation to his eye difficulties. Not all of these can be corrected or improved in the sight-saving class, for the cause of much of the trouble is more often than not permanent. But so much can be accomplished through school influence that other environmental difficulties are often vitally affected.

That these maladjustments are caused only by one set of environmental factors such as those found in school life is illogical. Other situations existing in the home, family, recreation, friends, etc., are all contributing factors.

Physical Conditions in Classroom

To the child with defective vision, work in the regular grade with educational media unsuited to his needs may cause a great deal of eyestrain, with the attendant undesirable reactions, nervousness, fatigue, and increased eye difficulty. Dr. K. R. Smith, speaking of this condition, says: "Effort means fatigue when it is continuous; hence the inability for prolonged close work. Repeated fatigue may lead to a condition of exhaustion and to neurasthenic conditions, as well as to indications of irritation in and about the eyes themselves, which may be completely incapacitating."[3]

By use of the proper materials this strain is lessened or eliminated. Textbooks are printed on unglazed paper in 24-point type. In order to provide the children with the desirable amount of research material and to supplement their own limited reading, much reading aloud by the teacher is done in a sight-saving class. Movable seats make it possible for the children to get as close to the board as necessary, very large chalk and large manuscript writing (which has few acute angles) and correct spacing between lines and letters eliminate the strain of blackboard work. Special maps and pictures, large in size, distinct in outline, clear in color, and with a vast amount of detail omitted, provide these children with the illustrative material needed.

Causes of Eyestrain in Class

A common cause of eyestrain in the normal class situation is the long eye-work periods frequently used. Such continued use of the eyes may have no bad effect on a child with normal vision but may have a very definite effect on eyes which cannot comfortably do close eye work for more than fifteen or twenty minutes. The program of a sight-saving class provides for an eye rest period following each period of close eye use. For a person who has never had an eye difficulty it is hard to realize the amount of fatigue that is avoided by this frequent relaxation of nerves and muscles that work under constant strain.

Another source of difficulty may be the strain caused by incorrect lighting conditions in the usual classroom. Because of the large number of children and the fixed seats, the child often works in such a position that he has insufficient light, light coming from the wrong direction, or glare, either direct or reflected. Each of these, in itself, is a strain on even normal eyes; how much more so on eyes that are weak! The sight-saving class child, having been made light-conscious and having the advantages of unilateral lighting, movable seats, raised desks and dull-finished furniture, woodwork and walls, is spared this source of discomfort.

Mental Problems

At the beginning of this article it was said that there are no distinct "mental problems" with a direct eye source. There are, however, many mental problems arising from the physical strain under which a child with defective vision works in a normal classroom. Frequent headaches, tired nerves causing fatigue and inability to concentrate, frequent failure, the attitude of the other children toward one who is handicapped, etc., tend to cause undesirable behavior attitudes. Zackary says of the behavior of such children, "Since personality is built on a biological or physical foundation, in considering the education of personality we must not lose sight of the fact that ill health and lack of physical vigor may predispose the individual to nervous instability and that it is often on such a background that destructive patterns are built."[4] The mere placing of a child in a comfortable working environment will, in some cases, cause a desirable change. The release from

strain will often prove sufficient to break these bonds and make the formation of a happy mental outlook possible without planning any curative measures. This is especially true if the child has but recently acquired poor eyesight and, therefore, has not had to face failures due to conditions he could not control or understand.

On the other hand, those children who have faced frequent failure and have developed an inferiority complex need definite curative measures. As in any other case study, we must carefully determine the cause of his failures and the defense mechanism he has built up before we can hope to reach the root of the child's trouble and help him to eradicate it. Thom says, "Most of the neurotic tendencies seen in adult life are efforts on the part of the individual to do two things; first, to get away from the demands of a situation, that to him, at least, seem intolerable; and second, to protect his own self-esteem by finding some plausible reason for the flight."[5]

Fields of Failure

There are three major fields—scholastic, social, and personal—in which the failures occur. These are so different that it is obvious the treatment of them must vary greatly. The number of children having a failure history on entering a sight-saving class makes it evident that failures in the scholastic field present a major cause for defense mechanisms. A study made in 1925 of the retardation and promotion records of the children in sight-saving classes in Cleveland shows that 65.5 per cent of the total enrollment of the sight-saving classes were chronologically retarded. The promotion record for children, while members of the classes, is 93.7 per cent. This shows quite definitely that in that city, at least, children capable of accomplishing the school requirements were victims of their environment.[6] Since individuals have varying reactions to any situation, each of which may be normal for that individual, so these children have normal but differing reactions to their scholastic failures.

One child, an introvert type, may tend to become more and more of a recluse. This is especially true of myopes because their vision is such that they can see distinctly only when material is held close to the eyes. Because they are failing in subject

matter they tend to work more and more, and sometimes overcome failure by sheer effort, not realizing that they are narrowing their outlook on life and increasing their eye difficulty. In the sight-saving class an attempt is made to draw such a child out of this recluse attitude. The group in a sight-saving class is small and, therefore, he can automatically feel his greater importance in it; his periods of eye work are curtailed and his activities, during his increased leisure, are guided so that he feels there are other worth-while things in life. Other avenues of learning are opened; a reader may be provided to relieve him of some of the eye work in preparing lessons, and he is helped to understand the use he may make of the radio, museums, etc., as sources of information.

Rationalizing offers an excellent escape for the child who has been led to self-pity and a feeling of inadequacy by hearing adults exclaim, "Remember, he cannot see well," or who has learned from experience that the excuse, "I cannot see that," is accepted as an alibi for lack of effort. Thom, in speaking of such cases, says, "Not infrequently we find children exploiting their illness to avoid an unpleasant duty or to gain attention."[7] When this illness or condition is chronic it surely is not hard to understand the growth of this reaction. In a sight-saving class such excuse is no longer valid since the child realizes and is conscious that others realize he can see the materials presented to him in the sight-saving class. Accompanying the removal of excuses, there must be a special effort on the part of the sight-saving class teacher to provide situations in which the child may be confident of success. Careful diagnostic tests will reveal just how far the child has progressed, for grade placement is a very inaccurate guide. Carefully graded work in which the child will experience both success and progress, and thus connect pleasant reactions with effort, will gradually weaken the habit of offering excuses and strengthen desirable behavior habits.

The extrovert child frequently assumes a superior attitude to cover his inability to succeed. He believes that he is different and is proud of the fact. He has an interesting handicap that others do not possess and which many cannot be expected to understand. In most cases parents are to blame for the acquiring of this complex. When the child and his parents are taught that

the sight-saving class teacher understands exactly the limitations of the child, he can then be treated in a manner that will bring about more normal reactions.

Social Failures in School

The partially seeing child may also meet social failure in school, especially in the game or physical work period. This, however, unlike the scholastic failure, is not limited to school situations but extends to other social relationships. He may be keenly conscious of the fact that he is unable to win any game in which quickness or accuracy of vision is an element. Also, he very often fails to observe small or rapidly moving objects that are plainly visible to his companions, such as birds, leaves on the trees, airplanes flying, etc. Very definitely the advice of Dr. Charles Scott Berry is applicable, "Direct the attention of the handicapped child away from what he cannot do to what he can do. Specialize on strength, not weakness. Give him an opportunity to participate in social activities while he is in school, similar to those in which he will participate when he leaves school."[8] Many of the games played by normal children are either dangerous or inevitable failure situations for the visually handicapped child. His participation in the physical work with normal children should be limited to those games and exercises in which he can successfully join.

It is here, and in helping him choose hobbies for his leisure time, that the greatest care must be exercised in assisting him to get a wholesome realization of his handicap. The teacher cannot remove, or even partially correct, the definite problem that his vision difficulty presents to the child, but she can help him to get the greater outlook that "Mental health is not just happiness, just contentment, or efficiency, or the grace of obeying the rules of the games cheerfully. It is all of these together. It is the capacity for facing the adventures of life bravely and effectively, and adjusting oneself to the demands of the situation without damaging it or being damaged by it."

By building up this outlook, by helping the children to see all the angles of a situation and to judge them before attacking it, the sight-saving class teacher is forestalling many future failures the child would otherwise experience. She may be able to aid

the child somewhat in choosing a vocation by suggesting, from her knowledge of his physical, mental and social ability, avenues that are open to him.

Problems of the Gifted Child

In the sight-saving class, as in every school situation, the really gifted child presents the gravest problem. But the sight-saving class teacher can teach him to use all the tools at his command; she can often provide readers to bring to him the material he cannot find for himself; she can emphasize the value of the radio with its wealth of information, inspiration and the beauties of life—travel, religion, music, poetry—and the typewriter to record his thoughts without eyestrain. Perhaps she can give him a real courage and faith in his ability to live up to his gifts through a knowledge and an appreciation of the great ones of the world who were handicapped—Handel, Milton, Beethoven, Helen Keller, Franklin D. Roosevelt, and others. If the teacher can do this, the mental hygiene ideal may be more nearly realized, that "Happiness comes from doing and exercising one's creative faculties, whatever they may be; and he who finds ample opportunity for fundamental expression needs no one's pity."[9]

Result of Failure

Of failures in general someone has said, "Failures in general lower his self-esteem. He feels inferior, is filled with doubts and misgivings, is lacking in confidence, and thinks himself inadequate to meet any situation which needs self-assurance." No sense of failure is as tragic as that of a child who feels that he is a failure personally, in appearance, in his immediate social group, or in his attempts to meet new situations. Frequently, defective eyes are less attractive than normal eyes and the child is hurt either intentionally or unintentionally by cruel or inconsiderate people. When the child's unhappiness is simply associated with his physical appearance, carefully selected true compliments, given casually and frequently, will do much to rebuild self-esteem. The teacher can also enlist the co-operation of other teachers, and of the parents, to surround the child with an appreciative atmosphere. In many cases, a true value of appearance and character may

help the child to regain a balanced outlook. This process is slow and needs a very carefully planned program.

Apparent laziness often accompanies this lack of the child's faith in himself. He has no desire to attack new situations. This is especially true if a dependent attitude has been fostered in the home. Again the sight-saving class teacher can do much to provide success situations in school work, game situations, and in personal responsibilities toward the group and school, since she has an appreciation of his difficulties. In every problem the teacher meets she needs a great fund of understanding sympathy.

Problem Parents

In our dealings with maladjusted children we find all too frequently that we are dealing with problem parents. Bronson Crothers, writing of children with sensory-motor defects, says, "They frequently suffer from entirely unnecessary difficulties, some of which are gratuitously imposed on them by well-meaning teachers and relatives."[10] Though, for the sake of clearness, the relationship of the sight-saving class and the child, and the relationship of the sight-saving class and the parent are treated separately in this paper, in practice they are closely integrated. We cannot hope to adjust the child satisfactorily without the co-operation of his parents. "Habitually undesirable behavior in a child is a symptom that the training methods or attitudes of the parent need changing."[11]

These undesirable parent attitudes may be due to one of several causes. The parent may be over-sympathetic, and thus emphasize the handicap of the child and make him dependent on her sympathy and aid. She often indulges the child by offering him rewards or bribes to work or to obey ordinary eye health rules that should be habitual. In these matters, indulgences such as allowing him to go without glasses when they have been recommended by the physician, or to read fine print, are definitely harmful.

Another common cause of these attitudes on the part of the parents is indifference. In this case they fail to realize the problems of the child and either force him into an unhappy failure reaction because he is expected to live up to the requirements of the normally sighted child, or permit him to become an introvert through

neglect. Again, important eye health habits may be neglected, not through indulgence, but through indifference on the part of the parents.

A third type of parent is the one who fails to understand the situation, either through ignorance or a refusal to face the facts of the case. Perhaps the doctor has failed to impress or explain the seriousness of the child's eye condition or the parent refuses to believe it is as bad as he says.

In any of these cases the parents do not understand and apply the fundamental rules of eye hygiene or realize their importance in the emotional and physical development of the child. The problem of reaching these parents and of educating them is a very important part of the sight-saving class teacher's work. The very first requirement is to gain their sympathetic interest. Home calls and cordial invitations to visit the school help to establish these relationships. After the teacher has become acquainted with the home conditions, visits to the school will probably be more fruitful. Attention called to the fine equipment and the reason for its selection explained, praise of the good eye habits the child is acquiring, oral hygiene lessons in which the children themselves stress desirable eye rules, will do much to teach parents their importance. A careful explanation of the child's capability and handicap (based on the physician's diagnosis) may be information they will be glad to receive.

If the teacher is trying a curative program involving social situations or behavior attitudes that should be extended to the home and play environment, the co-operation of the parent is invaluable.

Sight-Saving Class Meets Social Problems

The sight-saving class meets a widespread social problem. About one child in 500 of the school population is in need of this special education. Their problems are not limited to the children themselves. As Mrs. Hathaway has stated so concisely, "Nor are the children alone benefited; grade teachers who have found these children one of their greatest problems are relieved of having to devote an unfair amount of time to them; nurses are no longer worried with the fear that the eyes of their charges are growing worse, for they know that every opportunity is given them to

grow better; oculists who have been at their wits' end to know what to do with children unable to use the regular school equipment find in these classes a solution for one of their many problems."[12]

Sight-saving classes are a very great preventive of even greater social and mental problems than those mentioned. They do, in a large measure, prevent turning out into the world a number of untrained or unadjusted individuals and also frequently do what the name suggests, save the sight of the partially sighted child. In these latter cases, the sight-saving class prevents society from becoming burdened with the financial and mental problems of the blind.

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Editorial

Conserving the Sight of School Children

A NEW school year has begun. Millions of children have been taken from the sunlight and out-of-doors, from activity and play, and assigned—so many to each room—each to his own seat and desk. Does the school consider the effect on the eyes of such change? School teachers, supervisors, principals, school physicians and nurses, as well as parents, are deeply concerned with the welfare of these children as charges of the school. Through the design of the school system, not one of these millions of children is overlooked—each answers to some particular rollcall; each is surrendered by parents or guardians for learning and well-keeping during the school period. In fact, a large percentage of them are at school under legal compulsion, for in most states school attendance is required until at least the age of fourteen.

As one intimately connected with the schools for many years, I feel that the school is, in a manner, the guardian of the school child, and quite rightly is responsible for taking his health inventory. Each year, health inspections are made through the cooperation of the school physician and nurse with the teacher. As a part of this inspection, vision is tested, sometimes by the teacher, sometimes by the school nurse. When a deviation from the normal is suspected, parents are informed and urged to seek the advice of a physician.

If school teachers are to meet the heavy burden of responsibility placed upon them, they must be accorded the opportunity of adequate and proper pre-teaching training. Of the thousands of teachers, many are teaching for the first time. How many of them have had, as part of their curricular study, elementary eye hygiene, an introduction to school lighting, an understanding interpretation of why they will be responsible for and how they may safeguard the eyesight of school children?

The National Education Association maintains a joint health

education committee with the American Medical Association which is endeavoring to assist teachers and school nurses, as well as parents, by publishing and making available to them concise monographs on the subject of school health. In the preparation of these reports, outstanding experts are consulted. The chairman of the committee is Dr. Thomas D. Wood, professor emeritus of health education, Teachers College, Columbia University.

Recently, *Conserving the Sight of School Children* has been completely revised and expanded under the direction of Dr. Wood. Among the subjects discussed in the new edition are: the importance and extent of defective vision among school children; vision inspection and follow-up; classroom lighting and the problem of eye health; home and school co-operation in a program of eye health; and the school program of eye health. It is the consensus of the eminent educators and ophthalmologists who reviewed advance proofs that this publication is of utmost importance. I sincerely believe that until the time when every teacher training institution has these topics as part of its curriculum in health education, this monograph should be a part of the content of every teacher's equipment.

Lewis H. Carris

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

Corrective and Protective Eye Goggles for Coal Mine Employees

During 1933, The Union Pacific Coal Co., operating ten coal mines in Wyoming, decided to undertake a visual survey of all of its mine operating officials and employees. Although the cost of workmen's compensation paid because of eye injuries was material, the management was more deeply concerned with the social loss and the suffering resulting from the many eye injuries.

As every element of coal production cost must be scrutinized, accurate data on all accidents, with the workmen's compensation paid therefor, are carried forward monthly. The number of accidents to eyesight and the resultant compensation paid are shown in Table 1 for nine calendar years:

Table 1. Accidents to Eyes and Compensation Paid

Year	Number Accidents	Compensation Paid
1925	15	$3,447.60
1926	25	3,889.69
1927	13	5,197.86
1928	13	323.74
1929	15	255.00
1930	19	3,264.00
1931	14	4,932.02
1932	13	6,211.72
1933	4	1,960.49
Total	131	$29,482.12

The limited compensation paid in 1928 and 1929 was because of the absence of a major eye injury in either year. The relatively small sum paid in 1933 represents payment for all accidents occurring from Jan. 1 to April 24, inclusive, after which, with the completion of our sight-protective program, no further accident to eyesight occurred up to the present moment, May 29, 1934. The last eye accident, which occurred on April 24,

1933, was a most unfortunate one, occurring as it did to a valued employee occupying a supervisory position. He had been examined for protective glasses just four days before a small piece of metal pierced the eyelid and eyeball, lodging in the muscular structure back of the eye, resulting in infection necessitating the removal of the eye.

The visual survey covered the examination of the eyesight of 1,742 men by a skilled oculist and optometrist. Of those examined, 436, or 25 per cent, were found to have 20/20, or normal vision, without glasses; the rest, 1,306, or 75 per cent, were found to be suffering defective vision in a major or minor degree. Of the 1,742 men examined, 593, or 28.3 per cent, were found to have major defects requiring correction.

A total of 113 men, or 6.48 per cent, was found with eyesight in bad condition, certain of the defects developed being present since birth, others being caused by disease and accidents, some of which occurred in boyhood or outside the mining industry after maturity, with a number properly chargeable to accidents in and about the mines. These 113 cases have been divided into four classes as set forth below:

(1) Men who, preceding the completion of the survey, had suffered the removal of one eye and who were wearing an artificial eye. There were seven in this class, one of whom lost an eye while the survey was under way.
(2) Men other than those in Class 1 who are either totally blind in one eye or who have light perception and projection only in one eye. Twenty men were in this class.
(3) Men who suffer poor vision in one or both eyes with or without glasses. Seventy-two men were in this class.
(4) Men who suffer from a progressive eye disease, and which will unfortunately, in all probability, grow worse. Fourteen men were so reported.

The survey included 85 young men employed during the examination period, nearly all of whom enjoyed 20/20 or normal vision. All of these young men were equipped with protective super-armor plate glasses before commencing work in the mines; starting out with adequate eye protection, they will be able to escape the tragedies suffered by many of the older men.

Preparatory to establishing the the compulsory use of protective glasses, a careful study of all available glasses and goggles was made, certain of the supervisory staff and workmen offering to try out the twoscore samples submitted. Thereafter an experienced safety engineer, who had given special attention to eye protection among shop workers, was requested to enter some of the mines, observ-

ing the conditions and character of employment with relation to sight requirements. As the mines are almost wholly mechanized, using trolley locomotives, undercutting machines and mechanical loading machines of various types, the question of lateral or side vision was most important. As a result of the several studies made, the super-armor plate-glass type without side screens was chosen for all workers other than those employed in machine repair work; for this service, super-armor plate glasses with side screens were made standard. All employees engaged in operating welding machines had previously been supplied with colored glasses and face masks.

Certain interesting facts were brought out by the application of protective glasses ground for correction of defective eyesight. A number of employees, some of whom were under 35 years of age, showed by examination visual conditions of the most serious character; for example, one man, but 29 years old, was found to be incapable of counting the number of fingers before him, if held more than 2 feet from his eyes. A corrective lens brought one eye up to almost perfect vision, but it was impossible to do anything with the other eye. This man had never suffered any accident to his eyes but both eyes had been operated on for cataracts. The examination showed the possibility of making an improvement in the worse eye by a further operation.

Another man but 40 years old was found with eyesight so bad that he could see only at 5 feet objects which should be seen at 200 feet with normal eyesight. This man had been injured by being kicked in the head by a horse some years before. Corrective glasses were furnished and the employee was placed in a position where he will not be compelled to work alone, and as far remote from danger as possible. Another man, 51 years old, whose eyes also had been operated on for cataracts, was found with very poor eyesight, but corrective glasses brought one eye practically up to normal, the other one to fair visual capacity.

During the eight-year period, 1925 to 1932, inclusive, 11 employees lost almost wholly or totally the sight of one eye. These accidents, when considered in connection with the much greater number of minor injuries received, represent a record of personal injury, human suffering, and social loss, which more than justifies the mandatory use of protective glasses by men working in and about coal mines, wherever located. Certain employees objected to the use of glasses, and as the earnings of the mine workers were comparatively low at the time the plan was put into effect, the management decided to furnish free examination and glasses to the men then in

their employ, with all replacements, as well as glasses required by men entering the service thereafter, to be purchased at the expense of the employee. The average cost per employee, including examination and glasses ground for correction where required, was $3.21 per pair. Not a single employee was taken out of service on account of impaired vision and the men with very inferior eyesight, which could not be corrected, were transferred to the least dangerous tasks.

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Trachoma in Wrestlers: a Menace to Public Health

It has long been known that trachoma is practically an occupational disease in wrestlers. As long ago as 1922 the late Dr. J. M. Patton[1] reported eight cases in professional wrestlers, and was even able to trace, in a somewhat incomplete fashion, the source of the disease in each of his patients. At that time major professional wrestling was limited largely to a small coterie, and the disease was confined to a somewhat narrow circle. However, with the advent of highly organized management the sport became much more popular. Increased remuneration attracted to its ranks many former college athletes and other young men who were prevented by the economic depression from obtaining other work. The nucleus of the new sport was the old-time professional wrestler; but before long the newcomers began to contract the disease, and to endanger the members of their immediate families and even their friends.

In 1930 Dr. W. H. Zentmayer[2] drew the attention of public health authorities to this new menace, but his warnings went unheeded.

The following cases are interesting and typical:

In 1933 the writer was asked to see a former intercollegiate football star who was complaining of sore eyes. His symptoms dated from the time that he began to wrestle professionally, three months before. He was suffering from early trachoma. He was advised to give up wrestling while his eyes were being treated; and he returned to his home in Chicago, where he saw Dr. Sanford Gifford. The latter wrote: "I feel quite sure that this is trachoma in the early diffuse stage when few definite follicles are present. When I was in Omaha, we saw eight cases in wrestlers, all very early and with the same picture. Their later course showed them to be undoubted cases of trachoma, and I am quite sure that X is another."

Under treatment the eyes im-

[1] Patton, James M.: Wrestlers' Trachoma, Am. Jour. Ophth. 5:545:1922.

[2] Zentmayer, William H.: Trachoma in Wrestlers, Arch. Ophth. 5:666:1931.

proved. As his apprehension lessened the patient became careless, resumed his wrestling, and before long his eyes became much worse. A year later Dr. Gifford wrote: "I am sorry I cannot tell you that X is well. He was at first somewhat irregular in coming for his treatments, but in spite of this his lids were almost smooth last July. He then went away for five months, using copper drops and I was sorry to find, on his return, active trachoma of all lids."

The second case is interesting as showing how wrestlers may spread the disease outside their own ranks.

A policeman complained of sore eyes, dating from the first time that he wrestled with a friend. He had marked trachoma, with pannus and ulceration of the cornea. On further questioning it was elicited that the "friend" in question was a professional wrestler known to have trachoma. This patient observed instructions carefully and is almost well, although still subject to minor relapses.

Attempts to obtain information from the wrestlers themselves were met with the same excuses, rebuffs and evasions that Dr. Patton encountered in 1922. However, several facts were ascertained. Certainly there is no doubt that "wrestler's eye," endemic among professional wrestlers, is bona fide trachoma. The men themselves are aware of their condition, and many have favorite remedies. A former champion, whose vision is reputed to be very bad as a result of trachoma, sent word to the writer that he had found mercury bichloride useful in his own case.

As a rule, however, copper solutions are preferred. Many are unaware of the contents of their favorite solutions, and often write to distant cities for formulae they obtained when wrestling there. Generally they accept the condition as an occupational hazard, seldom seek medical attention, and treat themselves and each other. In some of them the trachoma is healed, but vision is often very bad. The infection seems to be transmitted by the transference of secretion from one conjunctival sac to the other. The wrestlers themselves believe that it is carried by perspiration.

It is unlikely that the infection is transmitted voluntarily, as believed by some oculists. In this respect the men are considerate, and it is not unusual for a contestant with trachoma to warn his opponent of the condition before the match begins.

The situation is becoming increasingly grave, and measures to check the menace should no longer be delayed. So long as it is possible for a wrestler with trachoma to compete with an uninfected opponent, just so long will trachoma continue to increase among these men, their families, and their friends. Accordingly, it is idle to

speculate on which medicines should be used as preventives. There is nothing in our experience to indicate that such virulent infections can be eradicated or even controlled by palliative means.

The solution of the problem is suggested by the peculiar organization of wrestling as a sport. The individual manager-athlete combination, as it obtains in boxing, is almost unknown. Instead of this, each promoter has a string of contestants on his payroll; and wrestling is, therefore, controlled by a small number of men. If then, the board of health in each city in which wrestling is permitted were to inaugurate a stiff ophthalmic inspection of the contestants' eyes, it would be impossible for an infected wrestler to enter the ring. With this economic problem staring him in the face, the promoter could be depended upon to have the trachoma among his wrestlers eradicated with all possible speed.

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Communications

Pioneering of the Holt Sisters in the Lay Movement for the Prevention of Blindness

For some years I have been recording in brief story form certain of the activities of Winifred Holt (now Mrs. Rufus Graves Mather) within our field of the blind. And now, after reading in the Sight-Saving Review for June, 1934, Dr. Posey's delightful paper on "The Romance in the Movement for the Prevention of Blindness," I am moved to expand what he says of her and her sister's contribution to this pioneer movement.

Before Winifred Holt, still a young woman, returned from Europe in 1904, full charged with missionary zeal in behalf of blind people, she had sent her younger sister, Miss Edith Holt (now Mrs. Joseph Colt Bloodgood) to visit my school at Overbrook, Pennsylvania, and afterwards came there herself many times. Meanwhile the two sisters had founded the New York Association for the Blind of which Miss Winifred was made secretary. On my perceiving admiringly what potential champions our cause had gained in these two earnest lay workers, I returned these many visits—indeed, became a member of their association. Anyone reading its first report and the succeeding annual ones and the articles and books which Miss Holt wrote, will be astonished, as I was, at her comprehensive grasp of the general situation as she found it, and at how quickly she initiated means and measures to improve it.

At that time there was for the children of the New York metropolitan area the school on Ninth Avenue, active since 1832, and one for the others of the state at Batavia; but no considerable effort anywhere in the country in behalf of

the adults who always compose by far the larger proportion of the blind population. An up-to-date census revealing not only their numbers and ages but also their every condition and need was the young Association's first desideratum. While Miss Winifred was stirring up interest and support for the work, Miss Edith had opened the census bureau at the Holt residence, where the young women lived with their zealously co-operating brother, Roland Holt. This was then the headquarters of the Association itself and, using census cards and filing methods prepared by special experts, much progress had been made when it became evident that, in order to reach the many blind living in city and state institutions, an official warrant would be required. This brought about the creation of a state commission for the blind.

As I recall succeeding events, the Association's lawyer drew up a bill which he and Miss Winifred carried to Albany. They even suggested to the Governor names for the commissioners, together with that of Dr. F. Park Lewis, the ophthalmologist pre-eminently interested in sight saving, as chairman; and then, because the available appropriation was insufficient to cover the cost of the proposed census, offered in behalf of the Association to lend the needful amount. The Governor, accepting this offer, signed the bill. The resulting commission immediately appointed Miss Edith Holt its secretary of the census, which continued for many months to be for her a labor of love. With her paid assistants, she searched out the remaining blind and completed her long and arduous task. The 6,000 whom they recorded in detail and studied yielded certain startling statistics on causes of blindness, which led the sisters, as well as the commissioners, to realize the inadequacy of existing legislation and care, if not the culpability of society itself in the matter of preventing unnecessary blindness; for the returns showed plainly that very much of this blindness had been avoidable. Just think of it: hundreds of these their fellow citizens need never have gone blind!

One day when Miss Louisa Schuyler, a fellow member of the Association, came to see the Holt sisters at their beehive of a home, Miss Winifred not only made these findings of theirs plain to her, but also proposed what she believed society ought henceforth to be brought to do in the matter. Miss Schuyler offered to secure financial aid for the blind but Miss Holt told her that the most important thing was to prevent blindness. "How," asked Miss Schuyler, "can you prevent blindness?" Even then Miss Schuyler failed to be convinced; but after seeing the Commission's report which printed the statistics along with the pathetic

picture of needlessly blind children now reproduced in Dr. Posey's paper, and being referred and introduced to Dr. Park Lewis, she found that the report was true, and was roused to immediate action. This was enough for so determined a character as Miss Schuyler; and from that time forth prevention of blindness became the prime object of the Association itself, just as it is to this day.

A committee, called the Special Committee for the Prevention of Blindness of the New York Association for the Blind, was soon appointed. This committee made Miss Winifred Holt its official representative at an international congress, meeting in Manchester, England. The original members of the committee included Miss Schuyler, Mrs. Edward Ringwood Hewitt, and the Holt sisters, with Hon. Tecumseh Sherman as chairman. Miss Schuyler soon became chairman. Naturally she had used the above cited census revelations when appealing in person to the Russell Sage Foundation for a starting fund in behalf of prevention. The amount given was $5,000 a year for five years. A campaign to educate the public through visual and spoken propaganda, which should lead to preventive legislation, was immediately launched. Meanwhile the census office at the Holt home became the prevention office and continued as such until more room became imperative, when a larger office was opened at the Association's then temporarily hired Light-house and later, upon its having its own permanent Light-house, a large room was reserved for the office there. The first important public demonstration of the prevention of blindness, which was held in 1911 in the Metropolitan Opera House, in connection with a general exhibit of work for and by the blind, was organized by the Association. It was opened by President Taft. This prevention committee of the New York Association for the Blind subsequently grew into an independent organization, the New York State Committee for the Prevention of Blindness; and it is now the National Society for the Prevention of Blindness.

Large and encouraging results have already followed the lay pioneering of the Holt sisters in the first decade of this century. We of the schools for blind children foresee a rapid dwindling in the number of new pupils and even look forward to a day when such schools shall be a thing of the past. May God speed the day!

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The Sight-Saving Review

Editors' Note.—Heretofore we have been reluctant to publish flattering comments on the REVIEW. However, we sincerely believe that implanted amidst the generous praise of Dr. Bahn's communication are some practical suggestions regarding the utility of the REVIEW.

There is no journal published in any language, and especially for such a moderate price, which gives more practical information about sight conservation than the SIGHT-SAVING REVIEW. Each volume contains 80 pages of interesting information, gathered from a wide range of lay and medical sources, by an exceptional editorial board, containing internationally known names, such as Jackson and Wilmer. They seem to have the uncanny ability to select just the right information, and to present it in such a pleasant and simple style, that its reading is a recreation, and not a task.

I have especially enjoyed the original articles, some of which should also be published in medical journals because of their technical excellence, and also because of their human presentation.

The editorials are timely, well written, and encourage thought on subjects selected by a most capable editor. The forum offers those with different views an opportunity to express themselves, and thereby help in the common cause of sight conservation. Notes and comments contain abstracts of interesting items. They are especially well adapted for talks before dinner and other clubs. The abstracts are selected from a wide range of journals. They often have given me a new and sometimes important viewpoint—that of the intelligent layman.

In my waiting room, patients like to read the REVIEW, and frequently ask questions about the subjects that interest them most. The REVIEW is a valuable aid in educating the public on eye health, about which ophthalmic practice of the future will center. Better understanding will reduce the number of neglected eyes that might have seen better.

Then, too, the REVIEW pleasantly reminds me that I am doing my bit as part of that big family which is doing much to conserve sight, the National Society for the Prevention of Blindness!

CHARLES A. BAHN, M.D.
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Eye Injuries in Industry
Section on Ophthalmology
HOW COSTLY ARE EYE ACCIDENTS?
EYES CAN BE SAVED IN INDUSTRY
NATIONAL SOCIETY FOR PREVENTION OF BLINDNESS
FIRST AID FOR EYE INJURIES
NATIONAL SOCIETY FOR PREVENTION OF BLINDNESS
HOW EYES ARE INJURED
60% FLYING BODIES
8% TOOLS OR PARTS OF TOOLS
7% SPLASHING SOLUTIONS
2½% EXPLOSIONS
2% FALLS
0.5% INFECTIONS
NATIONAL SOCIETY FOR PREVENTION OF BLINDNESS
EYES SAVED in INDUSTRY
The drill broke
EYE SAVED

Eye Injuries in Industry

Special exhibit on eye injuries presented by the Section on Ophthalmology during the recent annual meeting of the American Medical Association, in Cleveland. Dr. Thomas D. Allen, chairman of the committee in charge of the exhibit, in acknowledging the Society's co-operation, reported wide interest in the exhibit and in the Society's publications.

Note and Comment

William Campbell Posey, 1866–1934.—At the moment of going to press the REVIEW learns the sad news of the death of Dr. William Campbell Posey, long a member of the National Society's Board of Directors, and contributor to the pages of the REVIEW. A comment on his life and on his inspiration in the field of prevention of blindness will appear in the coming issue.

International Association for Prevention of Blindness.—The spread of the movement for the prevention of blindness into thirty-eight countries in Europe, Asia, Africa and South America, as well as in North America, is eloquent testimony to the inspiration of the International Association for Prevention of Blindness and its loyal adherents. At its recent annual meeting in Paris, many of the national committees were represented, and reports from those not personally represented showed the steady progress of the world-wide movement to conserve sight. Of special interest in the past year have been the active campaign carried on in India, through the Indian Red Cross, to educate the public in the elementary laws of sight conservation; the instructions of the Minister of National Education in Italy for the establishment of sight-saving classes; and the active co-operation of the prevention of blindness division of the Canadian National Institute for the Blind with the International Association, in contributing its posters and periodicals on prevention of blindness. Special mention was made of the progress of the National Committees in Spain, Belgium, the Netherlands, and Great Britain.

It was especially fitting that at the opening of the joint meeting of the International Association and the International Organization Against Trachoma honor be paid to one who has contributed so generously of time and effort to the growth of this far-reaching movement. Dr. Park Lewis, vice-president of the National Society for the Prevention of Blindness, as well as of the International Association, was delegated to bestow upon Dr. Felix de Lapersonne, president of the International Association, the Leslie Dana Gold Medal. Said Dr. Lewis:

"Maître, on behalf of your colleagues and friends in America, may I ask you to accept this disk of gold, not because of its intrinsic worth, but as a symbol of the sincere friendship existing between your country and mine, a friendship which we trust may be endless; also does it express the deep regard which we hold for you, yourself. In receiving this tribute we feel that you give to the medal a new value. Having been accepted by one of the masters of French ophthalmology, it can never be other than a distinction of the highest order."

Dr. de Lapersonne, in accepting the medal, concluded:

"I would feel unworthy of this great honor if I did not entirely attribute it to the International Association for Prevention of Blindness. It is to this Association that this award is made for distinguished services in the prevention of blindness, according to the statutes of the Leslie Dana Foundation, and since the Executive Committee kindly renewed this morning my mandate as chairman, I make the solemn promise to devote all my remaining strength to the task we have undertaken."

Among the distinguished scientists who contributed to the symposium on world-wide control of trachoma and tropical diseases of the eye were Prof. Emile de Grosz of Hungary, chairman of the International Organization Against Trachoma; Dr. A. F. MacCallan, whose work in trachoma control in Egypt has made prevention of blindness history; Prof. Luigi Maggiore, speaking for the strides now being made in Italy; and Dr. Victor Morax, moving spirit in the League Against Trachoma and editor of the *Revue Internationale du Trachome.* Communications on the subject were received from the United States, from India, from Greece, from Brazil and Argentine, as well as from Canada and the West Indies, the Dutch East Indies, Algeria and Tunisia.

Concluding the meeting, the following resolutions were passed:

"1. The Assembly which met in Paris on May 14, 1934, after becoming acquainted with the valuable documents presented at this meeting and after hearing the most competent speakers on this subject, affirms once more the social importance of trachoma: It expresses a wish that an intensive international campaign be carried on against this disease.

"2. The severity of trachoma and its dangers to eyesight are increased during its prolonged course by superadded infections, particularly gonococcal infection which assumes in certain countries the character of a seasonal epidemic.

"3. There is no doubt that the general health and the soil on which the disease evolves have an influence on the prognosis.

"4. Sanitary and administrative measures, the multiplication of hospitals and special dispensaries in countries in which trachoma has been rife for thousands of years have made it possible to cure trachoma in more numerous cases and to circumscribe its harmful effects on eyesight.

"5. On the other hand, although there is as yet no specific treatment for trachoma, the remedies applied during recent years seem to have yielded favorable results, but one must always take into account, when appreciating these results, superadded infections.

"In spite of all it must be acknowledged that the school index of trachoma, which must be considered a criterion, does not decline in certain countries where it is scientifically recorded. This is a further proof that familial infection occurs very early. One must therefore recommend the detection of the disease in the mother and infant by means of home visiting by health visitors and native assistants. They must be intrusted with the immediate application of prophylactic treatment and of elementary hygienic measures."

Eyesight Survey in Pennsylvania.—The vision of 150,000 school children was recently tested by the school division of Pennsylvania's department of health. It was found that, of this number, 5,239 children have seriously defective vision. In order to insure prompt correction of these defects, which, in many cases, might otherwise lead to ultimate blindness, the Department of Health, in co-operation with the Department of Public Instruction, has advised county superintendents of the gravity of the situation, and has supplied them with lists of pupils in their districts having need for immediate corrective measures.

Forward Steps Taken by Japan in Sight Conservation.—The second national conference on prevention of blindness in Japan was held last spring at the Home Office in Tokyo; special interest

was shown in the problem of the partially sighted child, and the following steps were outlined: 1. Establishment of a definition of partial sight; 2. Examination for the detection of children with partial sight; 3. Proposal to national and provincial authorities to establish sight-saving classes. Dr. S. Ishihara, who represents Japan in the International Association for Prevention of Blindness, is among the prominent ophthalmologists on the committee to put these suggestions into effect.

In an effort to extend trachoma control, the Nagasaki committee of the Japanese Red Cross sent out a mobile eye clinic into rural sections. In one day, as many as 869 patients were attended by the physicians, who not only treated those afflicted, but lectured to rural audiences on hygiene of the eyes.

Eye Social Worker's Opportunity Board.—The specialized knowledge of the medical social worker in an eye department "includes information about community resources in the way of sight-saving classes, special educational activities for adults with sight handicaps, and whatever opportunities for industrial re-education and placement may be available through state or local resources. She has a peculiar responsibility in the area of prevention of blindness which goes beyond individual situations into the interpretation of her accumulated knowledge in such a way as to make the community itself aware of specific needs and resources for meeting them in the field of sight conservation." This definition of the expanse of the medical social eye worker's field introduces three case studies in sight conservation, presented in the *Family*, for June, by Lillian Rosenberg, Dora Zane and Mildred McMillan, medical social eye workers who recently completed intensive study in medical social eye work at the Massachusetts Eye and Ear Infirmary in Boston.

That prevention of blindness activities take on many different guises in the well-rounded service of the Pittsburgh branch of the Pennsylvania Association for the Blind is demonstrated in the account of prevention activities given in the *Seer* by Dorothy Hosford, Pittsburgh medical social eye worker. Preschool vision testing given in connection with the parent-teachers' summer round-up has made early contact between sight conservation and

the youngest school children. Incorporation of sight-saving knowledge into the hygiene course of elementary schools was undertaken and prepared by the prevention of blindness department, and conferences with the school board emphasized the error of assuming that correction of eye defects was the ultimate goal of community responsibility to children with visual handicaps; follow-up of progressive cases and application of the principles of eye hygiene were stressed. Other activities of the department for the prevention of blindness lie definitely in the field of medical social service: making arrangements for clinic visits, helping families on relief to procure eyeglasses; and making connections between the families needing eye care and those giving it. The wide contacts which the prevention of blindness worker makes demonstrate most graphically the importance of eye care and the meaning of sight conservation to the whole community.

ASA Formulates Safety Glass Standards.—The wide diversity of claims for safety glass made by manufacturers, and the present tendency of state legislatures to enact laws regulating the use of safety glass in automobiles, make speed in developing safety glass standards imperative, according to a report of the sectional committee of the American Standards Association that met in New York City in June. A technical group, to formulate standards, appointed by Alfred Devine, deputy registrar of motor vehicles in Massachusetts, will include manufacturers of glass, of plastics, of automobiles and other motor vehicles, as well as representatives of insurance groups and members of safety organizations. The standardization of safety glass will follow closely the wide movement for the installation of such glass in all vehicles, an effort in which the National Society for the Prevention of Blindness has been active.

Annual Meeting of Illuminating Engineers.—The Illuminating Engineering Society will hold its annual convention in Baltimore, October 1 to 4. The Tenth Lighting Service Conference and a Lighting Equipment Exposition are special features of the meeting for this year.

British Studies in Illumination Continue.—The investigations of the effects of lighting and the studies of optimal lighting for

special industrial requirements, made under the auspices of the Industrial Health Research Board of Great Britain, have been of inestimable value to industry as well as to public health. A recently completed study on the effects of lighting on the efficiency of tile pressers bears out again the conclusion that good lighting is an important factor in promoting efficiency of workers, even when the nature of the work makes little demand upon the visual capacity. Another study, from which it is yet too early to draw conclusions, is the attempt to determine the optimal lighting for schoolrooms; an investigation into the lighting required for hand sewing is also under way.

Bernard Cridland.—The National Society joins with the International Association for Prevention of Blindness in expressing sorrow and a deep sense of loss in the death of Dr. Bernard Cridland, ophthalmologist and British representative in the International Association. His efforts in the reduction of industrial eye accidents and his invention of the Cridland veil, a mask widely used in England to protect the workman from flying sparks and particles, have made a distinct contribution to sight conservation.

Illuminating Engineering Society Recommends Lighting Intensities for the Home.—The following table of lighting intensities has been recommended by the Committee on Residence Lighting of the Illuminating Engineering Society as desirable for comfort in seeing:

	Operation or Location	*Foot-candles*
Reading—	Ordinary type	10–20
	Prolonged periods with fine type	20–50
Sewing—	Ordinary sewing on light goods	10–20
	Prolonged sewing on light goods	20–50
	Prolonged average sewing	50–100
	Fine needlework, sewing on dark goods	100 or more
Writing		10–20
Card Playing		5–10
Children's Study Table		20–50
Dining Room (when used for reading or writing)		10–20
Kitchen—	General	5–10
	Work Counters, Sink	10–20

Operation or Location	*Foot-candles*
Bedroom—General	2–5
Bed Light	10–20
Dresser, Vanity and Dressing Table Mirrors	10–30
Sewing Machine	20–50
Bathroom Mirror	10–30
Children's Playroom—General	5–10
Local	10–20
Work Bench	10–30
Laundry Tubs, Ironing Machine, Ironing Board	10–20
Stairways	2–5

Mothers and Children in Russia.—A new note in political propaganda is struck in the 1933 report of maternity and child welfare in Leningrad, Russia. A photographic exposition of the activities of the State in behalf of mothers and children, with short explanatory captions in Russian and English, has been received by the Society.

"Women in the USSR participate in the work of socialist construction on an equal footing with men," says the introduction to the report. "In drawing women into the useful work world, the Soviet government gives them the opportunity for the highest development and realization of their creative abilities. . . . Simultaneously, by measures safeguarding the welfare of mother and child, the Soviet Public Health Department enables the woman-citizen to fulfill her function of motherhood without any interruption in her socially useful activities."

Health and hygiene lectures, corrective and body-building gymnastics given in the factory, maternity leaves of sixteen weeks with full pay, prenatal clinics, maternity homes and pediatric services make the process of motherhood and the period of childhood as free from complications as possible, not only for those who would avail themselves of these services, but for everyone, since such care is compulsory.

Edward F. Glaser.—The National Society for the Prevention of Blindness records with sorrow the death of Dr. Edward F. Glaser on May 9, 1934. By profession and by voluntary affiliations Dr. Glaser had long been devoted to the work of preserving sight. Not only had he been on the Directorate of the National Society since 1918, but he was a vital force in the California Council for

the Conservation of Vision. Dr. Glaser's career was one of enduring loyalties. To him belonged the distinction of having served on the California State Board of Public Health longer than any other member—a period of almost eighteen years—during which time he became noted not only for his medical skill but also for his interest in social advancement.

Prevention of Blindness in India Granted Aid.—A step which has long been sought by prevention of blindness workers in India has recently been made possible through a grant from the National Institute for the Blind in London of £590. This fund will cover expenses for training teachers in simple preventive measures against blindness and will provide for the printing in vernacular and distribution among school children of popular material on the prevention of blindness.

Night Driving: a Special Hazard.—That some people are not equipped by nature for night driving is the warning given by Vernon Scobie, safety engineer, in a series of safety talks on commercial driving. Some people suffer from eyestrain and fatigue more at night than during the day, while others are naturally safer drivers at night than during the hours of daylight. If the company does not provide eye specialists' examinations to test the ability to see under both day and night conditions, Mr. Scobie advises the driver himself to seek an examination. Properly prescribed colored glasses or light filters reduce in many cases the hazards of excessive eye fatigue and strain.

New Outlook and New Educational Aims for the Blind.—On the occasion of the fortieth anniversary of the founding of the Connecticut School for the Blind, Dr. Edward E. Allen, director emeritus of Perkins Institution and Massachusetts School for the Blind, traced the changes that must take place in the modern educational institution for the blind youth. Progressive education, attuned to the abilities of each pupil; selective schools for the blind of normal mentality and special schools for those with a mental as well as a visual handicap; and for all, preparation for a world where economic independence is harder than ever before to attain, must be considered in planning the curriculum for blind students. He concluded:

"A recent Houghton-Mifflin publication, *This Changing World*, foretells the eventual coming of a civilization actuated by a much more enlightened selfishness than the present. When that day comes, mankind will have the time, the freedom and the desire to cultivate true charity, that love which is called the greatest thing in the world. He will then transfer his major energies from relief of suffering to its prevention. As for blindness, there is no real solution of the problem it presents save prevention."

Traffic Signals for Color-Blind Drivers.—Although only about four per cent of the male population, and even less of the female, are color-blind, street traffic engineers must consider their problem in developing traffic signals. Dr. Thomas D. Allen advances a simple plan in the May issue of the *American Journal of Ophthalmology*, which has the added advantage of utilizing the present usual type of traffic light tower. The addition of another green light beside the present green light would show as a horizontal signal to the color-blind driver. Red or caution lights would be on the vertical plane.

Arnaldo Angelucci, 1854–1934.—The world of ophthalmology mourns the loss of a celebrated teacher and a great worker in its movements. Dr. Angelucci, president of the Twelfth International Congress of Ophthalmology, was an enthusiastic supporter of the international movements for the prevention of blindness and the control of trachoma, and his work in these two movements did much to carry to Italy, his native land, principles of health.

Ophthalmic Rule.—A refinement has recently been made by Mr Bishop Harman of the ophthalmic rule which he first introduced in 1910. Now made of duralumin, weighing but half an ounce, it is sufficiently strong to be carried loose in the coat pocket; the markings are mathematically exact. The rule is of special aid to ophthalmologists in determining binocular balance by means of the diaphragm test, and is indispensable to the optician measuring for spectacles.

Glaucoma, a Marker in Ophthalmic Progress.—The lure of medical history is particularly strong in the field of ophthalmology,

for in the case of many eye diseases recent progress has completely reversed older prognoses. Robert Clark Laughlin, who writes on glaucoma in the *Bulletin of the Institute of the History of Medicine*, supplement to the *Bulletin of the Johns Hopkins Hospital*, for May, says that Hippocrates was the first to record glaucoma, an eye disease that he associated with old age. But although writers for many centuries mentioned glaucoma, it was not until the invention of the ophthalmoscope by Von Helmholtz that the disease was understood in the modern sense. The contributions of Von Graefe, Weber, Bowman and Wilmer to the knowledge of glaucoma follow the progress made in every line of ophthalmology. The author concludes: "The day has now come when glaucoma does (not) mean blindness, but the percentage of operative failures is yet far too high. Perhaps the care and scholarly theoretical work now being done on the subject will make possible the day when glaucoma will cause no eyes to be dim."

Drought Causing Eye Accidents.—Carloads of material coming from all parts of the country are so laden with dust and dirt from lack of rain that the superintendent of one New Jersey factory thinks this is one reason for increase in eye injuries among warehousemen and freight handlers unloading box cars.

Illinois Extends Trachoma Control.—Experience in Illinois has shown that trachoma sufferers are restless when forced to remain long periods away from home during the often prolonged course of treatment given at the State Infirmary in Chicago. In order to make the necessary continuance of treatment easier for the patients, through the co-operative efforts of the State Department of Public Health and the State Department of Public Welfare and the Illinois Society for the Prevention of Blindness, arrangements have been made to carry out an intensive program of treatment in the rural southern sections of the state, where trachoma is most prevalent. It is believed that the treatment of the indigent patients who are at present getting no treatment and who have no prospects of getting it except through outside help will result not only in the humanitarian service of preventing blindness, but in large economic saving by reducing the number of blind pensioners for whom the state must eventually care.

Who Wears Glasses?—When records of all medical and eye care were obtained on 8,758 white families in 130 localities in 18 states, during a period of twelve months, it was found that in this average sampling of the population—covering rural, suburban, urban; rich, moderately well-off, poor; native and foreign born—40 per mil had had eye examinations, and that 35 per mil had procured glasses for correction of refractive errors. During the school age, and again from the ages between 50 and 54, the frequency of refraction and correction rises abruptly; refractions are more frequent among those in the higher income brackets, as is to be expected; a larger proportion of persons who had a general physical examination also had a special refraction examination; headache and other symptoms were given as the reason for seeking refraction in 68 per cent of the cases. Most surprising are the figures showing that 10 per cent of refractions were made by eye physicians; 56 per cent by other physicians; and 34 per cent by opticians and optometrists. Selwyn D. Collins makes the report in the June 1 *Public Health Reports.*

Fighting Blindness in Egypt.—Eighty per cent of blindness in Egypt is caused by acute ophthalmia, according to the report of the ophthalmic section of the Ministry of the Interior of that country. Of this number, gonorrheal ophthalmia makes up 47 per cent of the specific infection. That 40 per cent of those seeking ophthalmic aid at eye clinics are between the ages of one and thirty shows not only that the necessity for the treatment of the eyes of children and young persons is popularly appreciated, but also that many of the eye diseases are familial and contagious. Efforts are being made, especially through the school system, to reduce and prevent blindness from preventable causes.

Placing the Responsibility for Road Accidents.—Machines may be perfect, but man, their driver, is still fallible. According to a survey made by the Road Accidents Parliamentary Group of Great Britain, under the leadership of Sir Ernest Graham-Little, more than fifty per cent of accidents are caused by the human factor. Psychological tests, as well as actual road tests, are now being designed to pick out the accident-prone drivers and give them opportunity to correct those failings which might cause

accidents. Important to test are accuracy; speed and regularity of response to stimulus; resistance to distraction; effective distribution of attention; visual and optical defects; and confidence and general behavior in driving a car. The Travelers Insurance Company of Hartford has recently issued a psychological test for drivers, with a scoring system, for car drivers to give themselves. "Are You A Good Driver?" presents situations and tests on which a safe driver should score at least 80 per cent.

Dr. Alan C. Woods to Succeed Dr. Wilmer.—Dr. Alan C. Woods has been named acting director of the Wilmer Ophthalmological Institute and professor of ophthalmology at the Johns Hopkins University School of Medicine, succeeding Dr. William H. Wilmer, whose retirement was announced this spring.

When Dust Gets in Your Eyes.—A safe and effective procedure to follow when a particle gets in the eye is to keep the eyelids open. "Of course," says Dr. J. Robert Burke, writing in a recent issue of *Hygeia*, "closing the lids is the first instinctive reaction, that of protection, but the sudden forceful closing of the lid may be the means of further imbedding the particle in the eyeball. Hold the lids far apart with your fingers, and let the sudden rush of tears, which nature provides, flush over the eyeball. The particle may be floated out in this way." If this simple remedy does not bring relief, he continues: "Keep the involved eye gently closed and get to a doctor as quickly as you can. Do not go to a druggist, a beauty operator, or a barber; your eye is too precious for experimentation. . . . Avoid, as you would the plague, untrained persons who are always eager to help you."

National Society Notes.—The Board of Directors announces the election of George C. Clark of New York City as Treasurer of the Society. Mr. Clark, who was associated professionally with the late George Blagden, is deeply interested in the aims of the Society and well acquainted with the duties of its financial stewardship. Dr. Edward Jackson, known as the dean of American Ophthalmology, consulting editor of the *American Journal of Ophthalmology*, has accepted membership on the Society's Board of Directors. A recent addition to the REVIEW'S Board of Editors is Dr. Percy W.

Cobb, associate professor of applied biophysics in the Medical School of Washington University.

Ohio Wesleyan University bestowed upon Edward Marlay Van Cleve, principal of the New York Institute for the Education of the Blind, the honorary degree of doctor of laws. Mr. Van Cleve was formerly managing director of the National Society for the Prevention of Blindness, and is now a member of its Executive Committee and Board of Directors. The citation reads: "A noble gentleman, an educator who has used his gifts and his training for the education of those who are blind, one who has given himself so completely to this service that he has come to be recognized as among the first in the land in promoting and directing work for the amelioration, the education and the direction of the blind." This is the second time that such an honor has shed its reflected glory upon the Society: last June, Hobart College honored her son and alumnus, Lewis H. Carris, managing director of the Society, with the same degree.

Staff members of the National Society co-operated with several universities and colleges in lecturing to summer session students on various phases of sight conservation. Mr. Carris visited training courses for sight-saving class teachers at the University of Cincinnati, the University of Chicago, State Teachers College at Buffalo, New York, and Teachers College, Columbia University, where Mrs. Winifred Hathaway, associate director, was special lecturer. Dr. Anette Phelan, staff associate, lectured to various groups of students at Fisk University and George Peabody College in Nashville, Tennessee, on integrating eye hygiene in classroom teaching.

Mrs. Hathaway attended the Alabama Conference of Social Work in Montgomery, where she spoke on the necessity of making educational provision for children with visual handicaps; she visited schools in Montgomery, Birmingham and Tuscaloosa to discuss the possibility of establishing sight-saving classes in those cities.

At the meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago, Dr. Lawrence T. Post, editor of the

American Journal of Ophthalmology, and Miss Eleanor P. Brown, associate director of the Society, presented a joint paper on "Social Service in Ophthalmology."

Miss Mary Emma Smith, R.N., director of nursing activities, spoke at the Vermont State Nurses Association and the Monmouth County (New Jersey) Organization for Social Service, on preschool vision testing and prevention of blindness activities.

Co-operating with the New York Tuberculosis and Health Association, staff members of the Society have talked over the air, on sight conservation. Miss Brown discussed "Saving Sight in Summer"; David Resnick, director of publicity, spoke on "Eye Health for Children"; and, under the sponsorship of the Catholic Big Sisters of Brooklyn, Theodore O. Yoder, staff associate, discussed "Fireworks as a Cause of Blindness and Impaired Vision Among Children."

Current Articles of Interest

Low Fusion Convergence as a Factor in Reading Disability, Thomas Harrison Eames, *American Journal of Ophthalmology,* August, 1934, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. A study made to determine whether or not fusional dysfunction is an important factor in reading disability shows: 1. The median amplitude of fusion convergence is lower among nonreaders than among unselected cases; 2. The reading-disability group shows a higher percentage of cases below the level of the median of the unselected group in all three sizes of type used in the study; 3. The smaller the type the lower the amplitude of fusion convergence in both groups, but the percentage of reading-disability cases falling below the level of the median of the unselected group increases as the size of the letters diminishes; 4. The amplitude of fusion convergence is an important factor in reading disability.

Interstitial Keratitis, A Modern Anachronism, Park Lewis, M.D., *American Journal of Ophthalmology,* May, 1934, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. Interstitial keratitis, one of the most common causes of defective vision and blindness, is also among the easiest to prevent. Through early treatment of the syphilitic expectant mother, the child is protected from infection; yet the simple method of diagnosis and the necessary treatments are very frequently overlooked by otherwise competent physicians. A special appeal is made to ophthalmologists to co-operate in the campaign against this potential cause of blindness.

Ophthalmia Neonatorum, David Lees, F.R.C.S., *Public Health,* July, 1934, published monthly by the Society of Medical Officers of Health, London, England. A critical survey of the progress made in the prevention and treatment of ophthalmia neonatorum since 1881 is particularly valuable for the many references to the published views of the recognized authorities on the disease. The

writer concludes: "Although much has been done to reduce ophthalmia since Credé's work in 1881, there is no apparent reason why it should not be still further reduced and made a rare condition, if only the medical profession will utilize to the full the possibilities of preventive and curative medicine."

The Conquest of Congenital Syphilis, M. J. Exner, M.D., *Public Health Nursing*, August, 1934, published monthly by the National Organization for Public Health Nursing, New York, N. Y. "The lesions of late congenital syphilis, appearing mostly between the ages of two and fifteen, are chiefly those of the eye, mostly keratitis; . . . in one clinic, 63 per cent of the children over five years of age with clinically active syphilis had interstitial keratitis. In neglected cases keratitis usually impairs vision or causes blindness." The author stresses the importance of a diagnostic blood test for every expectant mother in order to prevent the tragic sequelae of congenital syphilis.

The Eye as Affected by Illumination, Le Grand H. Hardy, M.D., *Transactions of the Illuminating Engineering Society*, May, 1934, published monthly by the Illuminating Engineering Society, New York, N. Y. The author presents a comprehensive survey of the effect of light or visible radiation upon the eye, including its physical, pathological and physiological effects. The oculomotor functions are outlined and the illumination requirements for each of these functions discussed, as are also the psychological or perceptual functions of the eye. A review of the gradual revision upward of the intensity levels described as most efficient is made, with comments pertaining to intensity, spectral quality, distribution, diffusion, and other variables as related to ease, comfort and efficiency of seeing.

Your Children's Eyes, J. Robert Burke, M.D., *Hygeia*, July, 1934, published monthly by the American Medical Association, Chicago, Ill. Prompted by the questions parents often ask oculists, the author opens a general discussion on eyes in childhood, stressing the importance of cleanliness of the eyes of the infant, the avoidance of glare in infancy and childhood, the need for parents to view with concern any deviation of the eyes from normal fusion, and

the importance of providing corrective glasses for the nearsighted and farsighted child.

Light and Its Effect on Health, Howard A. Dunaway, M.D., *Medical World*, August, 1934, published monthly by the Medical World, Philadelphia, Pa. Pointing out the modern uses of light—as a source of ultra-violet radiation and for the illumination of work places—the author concludes: "This new factor of understanding the applications of light in industries makes the working man happier, saves the eyes, improves the health and makes for a better race of people."

Intravenous Use of Copper Sulphate Combined with Sodium Thiosulphate in Treatment of Trachoma, C. E. Rice, M.D., A. A. Drake, M.D., and J. E. Smith, *Public Health Reports*, May 4, 1934, published weekly by the United States Government Printing Office, Washington, D. C. In cases where the treatment of trachoma was undertaken by using a combination of copper sulphate with sodium thiosulphate, in varying doses, intravenously, it was found that in smaller doses there was no change in the pathology, although there was some improvement occasionally in the symptomatology. In the larger doses recommended by Stastnik, there was an undesirable reduction in red blood cells and hemoglobin. It is the conclusion of the writers that the possible dangers of this form of therapy outweigh any slight benefits obtained from it, and certainly it does not compare with older, established methods of therapy.

Psychogenetic Disturbances of Vision, Wilhelm Stekel, M.D., translated by Louis S. London, M.D., *Archives of Ophthalmology*, July, 1934, published monthly by the American Medical Association, Chicago, Ill. "One sees only what one wishes to see," says the author, and presents several case histories of disturbances of vision which were purely psychotic, and which responded to psychoanalytic methods.

Vitamin G Deficiency, Paul L. Day, *American Journal of Public Health*, June, 1934, published monthly by the American Public Health Association, New York, N. Y. Experimental work on young rats deprived of vitamin G showed the production of cata-

ract when the deficiency was continued over a period of time While it is yet impossible to gauge the minimum requirements of vitamin G to prevent the formation of cataract in man, it is plausible to quote and to agree with the conclusion of Sherman and Smith, who said, "the significant improvement . . . in longevity resulting from improving a diet already adequate is probably due in part to the higher content of vitamin G." Observing the premature old age resulting from vitamin G deficiency, and the preservation of youth and increased length of life resulting from a liberal intake of vitamin G, it is possible to make out a plausible case for a possible relationship between vitamin G deficiency and senile cataract. The signs of senility—the falling out of hair and other similar changes in the epidermal organs—in the experimental animals further correlated the relationship between premature senility, formation of cataract, and vitamin G deficiency.

Quality Requirements in Eye Protectors, W. P. Elstun, *Safety Engineering*, May, 1934, published monthly by the Safety Magazine Publishing Company, New York, N. Y. Goggles must be fitted to their tasks; they must be serviceable, comfortable to the wearer, and easily inspected for small defects. If they are to be worn by more than one man, they must be capable of withstanding sterilization. Technical investigation, laboratory tests and field trials are three methods of demonstrating goggle efficiency on the special job.

Book Reviews

MILTON'S BLINDNESS. Eleanor Gertrude Brown, Ph.D. New York: Columbia University Press, 1934. 167 p.

This remarkable book is the thesis presented by Miss Brown of Dayton, Ohio, as one of the requirements of the Ph.D. degree which was conferred upon her by Columbia University at the June, 1934, commencement—the first instance of a blind woman receiving the degree. The facts of Miss Brown's life are too well known to need repetition. She has shown phenomenal ability, determination and courage in working her way up through the undergraduate courses and the graduate school until she now has the A.B., the A.M. and the Ph.D. degrees to her credit. Moreover she has a record of many years of successful teaching in one of the large public high schools of Dayton.

A friend of mine, commenting recently on this achievement, remarked that Miss Brown's work as a teacher is far the more noteworthy as she could dictate her thesis. But, before she could dictate, she had to make herself a Milton scholar, and anyone who thinks that a simple task should study the footnotes and the bibliography which reveal the vast amount of research which preceded the making of the book. Both achievements, the teaching and the winning of the doctor's degree, show a remarkable capacity for adaptation to situations and an unconquerable determination.

Miss Brown's book is no slavish following of authorities. She takes successful issue with many well-known scholars, with Denis Saurat and his theory of Milton's blindness, with Dr. Tillyard and his interpretation of Sonnet XIX, with Professor Erskine and his interpretation of the autobiographical passage at the beginning of the third book of *Paradise Lost*, with those who think the character of Samson in *Samson Agonistes* strictly autobiographical, with Southeby in his study of the autographs of Milton. But her chief contribution is her interpretation of the character and work of Milton from the standpoint of one who shares with him the experience of blindness. She reaches the conclusion that sighted

persons, because of their lack of experience, have overestimated the depressing effect of blindness on the poet. She quotes as an entirely sincere expression of Milton's feeling, his words in the Second Defence: "It is not miserable to be blind. He only is miserable who cannot bear his blindness with fortitude." And she adds out of her own experience: "It is not miserable to be blind. I have sometimes thought that perhaps the best word for it is *inconvenient.* . . . It should be remembered that every individual has some kind of burden, and while blindness is not the lightest, it appears heavier to the sighted world than to the blind themselves. After all, few of us would willingly surrender our burden for that of another."

While Milton's blindness did not, in Miss Brown's judgment, make him, as others have affirmed, more sensitive to personal attacks, nor affect his choice of images, of luminous and color adjectives, his painting on a vast canvas, it did increase his power of concentration and it deepened his life and his poetry philosophically and spiritually. Milton would not have been the Milton we know if he had not been blind.

At the end of Lycidas the "Swain . . . twitch'd his Mantle blew" and on the morrow set out to "fresh Woods and Pastures new." We wonder what other conquests Miss Brown has in mind.

EDWARD S. PARSONS

EXTERNAL DISEASES OF THE EYE. Donald T. Atkinson, M.D. Philadelphia: Lea and Febiger, 1934. 704 p. Illustrated.

The author states that he believes such a textbook as this which deals primarily with the diseases in the anterior segment of the eye will be of value to the general practitioner and student since most of the diseases of the eye occur in the anterior half.

In chapter 2, Diseases of the Eyelids, he devotes more discussion to and has many more illustrations of the skin diseases of the eye than is found in any previous textbook in English. He includes a fairly comprehensive description of various operations for the repair of lid defects. A discussion of the lacrimal apparatus includes many rare diseases.

His chapter 4, on nasal pathology involving the eye and correlated symptoms, is of help to the student summing up the isolated

facts most often discussed separately by the ophthalmologist and the rhinologist. In his chapter on tumors of the orbit he discusses the causes of proptosis and gives illustrations showing unusual types of tumors. Here he includes operations on the orbit and gives at length descriptions of the various techniques for enucleation of the globe. Under conjunctival disease he includes injuries, infections, tumors, and describes various types of surgical repair of the conjunctiva.

The portion on sympathetic disease is too brief. There is no mention of the typical node formation and furrows or folds of the iris, its thickening and new blood vessel formation seen in typical cases of this disease. No mention is made of the significance of shrinking of the globe after injury.

His final chapter is on treatment and in this he gives a large number of prescriptions used for various diseases. In all there are 110 pages on surgery which seem to be a bit too much for the size of the book if it is intended chiefly for students and the general practitioner. I think more emphasis should have been placed on the attempt to develop vision in the squinting eye when he discusses squints and their treatment.

The book contains material on fungus diseases not commonly found in the average textbook. The illustrations are good and numerous. In all we believe that the book has merit and should be added to the student's shelf in the library of all medical schools.

L. Bothman, M.D.

A Hand-Book of Ocular Therapeutics. Sanford R. Gifford, M.A., M.D., F.A.C.S., Philadelphia: Lea & Febiger, 1932. 272 p. Ill. with 36 engravings.

This book is an evaluation of the principal therapeutic agents in ophthalmic practice in present use. It is a summary of a considerable experience not only from the clinical standpoint but also from laboratory tests. While it is a one-man opinion, yet on the whole this agrees in a surprising manner with the results of others.

The author is not content with time-honored agents and methods but has given a thorough trial to procedures which seem to fill a gap in our therapeutic equipment. Emphasis is placed upon careful observation of the actions of drugs and procedures in the indi-

vidual case so that, if the desired effects are not produced, other methods may be applied without loss of time. An attempt has been made to form an honest judgment on disputed questions and this gives the book a practical value.

The book is a modern résumé of ophthalmic therapeutics, and is welcome!

HARRY VANDERBILT WÜRDEMANN, M.D.

INDUSTRIAL HEALTH SERVICE. Leverett Dale Bristol, M.D., Dr. P.H. Philadelphia: Lea & Febiger, 1933. 170 p.

This little book is a condensed discussion of facts and problems of the health of the worker in industry from his personal standpoint and that of the employer and supervisor. It is written in non-technical language and presents a well-rounded industrial health program which will be of practical value to all those actively engaged in the organization, administration, and appraisal of health services in industry, to students of public health, business and labor officials.

There are 37 chapters, all of them very short, practically taking up the entire field of industry and health of employees. The following services are recommended to be available in the larger and more highly organized industrial medical departments:

First aid in sickness and accidents.
Advice on medical or surgical problems.
Attention to ailments of short duration and of a character not requiring absence from work.
Laboratory examinations, in co-operation with employee's physician.
Routine physical examination for employment, or in cases of suspected disease.
Periodic health examinations.
Distribution of health literature.
Co-operative services with sickness benefit committees or group insurance agencies, where present.

It is of particular interest to note that while industrial medicine is somewhat of a specialty in itself, yet a wide range of practice may exist; some companies depend upon services of private physicians and nurses, others allow their employees to select their own physicians and nurses. The industrial nurse is a specialist in indus-

trial organizations. She is not a doctor, a detective, a truant officer, or a medical policewoman. She can be of the greatest service in furthering the efficiency of the workers and the success of the business by friendly co-operation and tact, together with her professional duty, in which her chief objectives, as well as those of the medical man, should be education and prevention.

The three main divisions of the work are on industrial health service from the standpoint of management, from the standpoint of the supervisor, and, in semi-popular style, material that has to do with the personal health of individual employees, which may be used by the management as a basis for company health education through magazine articles, leaflets, bulletins, or talks on various health subjects.

As the work is so condensed, it is impossible to give a résumé of its contents. It is recommended for the purpose for which issued.

HARRY VANDERBILT WÜRDEMANN, M.D.

HEALTH AND ENVIRONMENT. Edgar Sydenstricker, New York: McGraw-Hill Book Company, Inc., 1933. 217 p.

Health and Environment, a recent monograph of the President's Research Committee on Social Trends, prepared by Edgar Sydenstricker, is in the words of the author "a frank attempt to review very briefly in a dispassionate manner the more important evidence bearing on environment and health . . . keeping as far away as we can from opinion, and staying as close as we can to important relevant facts."

In his conception of environment, the author includes "all external circumstances both physical and social which come into relationship with the lives of human beings." Such a concept of environment, including as it does all circumstances except true biological inheritance, offers a wide range of factors influencing the health of the population. The author considers in detail the geographic influences with variations in climate, soil and topography; the contrasted influences of rural and urban environment; the influences of economic status; the social factors in their influence on health; and influence of occupational environment. As one might expect, the study deals with many aspects of health, as well as many diseases and impairments. The author

cites instances to show how cultural progress favorably influences the health of the population, and offers suggestions for further advances in improvement of health.

The problem of eye health receives its share of attention, but the data on eye health are drawn chiefly from studies on vision impairments and the correction of them. In his analysis of the studies the author reveals some rather definitely indicated relationships.

The influence of occupational environment on vision defects was illustrated by the relative frequency of vision defects among postal clerks and garment workers as compared with the same defects among workers in other occupations; the relative frequency of the same defects among letter sorters as compared with other post-office workers; the prevalence of cataracts among glass blowers; and the excessive rates for inflamed eyes among workers in foundry, postoffice, and gas industries, and workers exposed to dust in glass industries. The author concludes that in some garment and postoffice occupations, intensive eye work under low degrees of illumination was undoubtedly the important, if not the principal, cause of the vision defects and eye disorders.

The author advances the following conclusion: "To the extent that effective conservation of that vitality which we inherit is purchasable in the market, health is determined by economic status." In support, he offers evidence from various health studies. In so far as vision corrections are concerned, the data offered appear to substantiate the conclusions drawn. A survey of corrected and uncorrected vision defects, analyzed by groups on different income levels, shows that wage earners in skilled trades have the highest rates for uncorrected vision defects, but the lowest for corrected, whereas the opposite is true for the professional group. Business men have a higher rate for corrected vision defects than wage earners, but lower than professional men.

The problem of correction of defective vision as indicated in the present study takes on a new significance when viewed in the light of another recent study dealing also with the correction of defects. In the study in question, data were offered to support the conclusion that economic status had less influence on the correction of defects of school children than had the educational efforts made by

the school. The findings of the second study do not contradict those quoted by Dr. Sydenstricker, but do suggest the influence of education on a change of living standards.

Dr. Sydenstricker draws evidence also from a recent survey of medical care and economic status to support his conclusion that the amount and quality of medical services received by people are proportionate to their purchasing power. In this study the subjects were grouped in five classes ranging from well-to-do to very poor. Among the well-to-do every patient with an eye disease received medical care; less than three-quarters of the patients in moderate circumstances received medical care; about one-half of the poor, and slightly more than one-quarter of the very poor.

The study as a whole reflects the courage of the writer in attempting so tremendous a task, the clarity of thinking in the attack upon the many problems involved, and an absence of bias on a question in which personal opinion plays so important a part.

ANETTE M. PHELAN, PH.D.

Briefer Comment

OUR PUBLIC SCHOOLS. Washington, D. C.: National Congress of Parents and Teachers, 1934. 208 p.

"Because issues have been clouded, emergencies have been critical, and people have been confused in properly evaluating the best things in life, there has been a need for stimulating and vital information concerning our public schools and a rededication throughout the nation to those American ideals of education which it must be our indomitable will to preserve," says Mrs. Hugh Bradford, president of the National Congress of Parents and Teachers, in a foreword to this handbook which sets forth the history and the scope of public education in the United States.

THE MOTHER'S ENCYCLOPEDIA. Compiled and edited by the Editors of the *Parent's Magazine*. New York: Reynal & Hitchcock, 1934. 959 p.

A volume of material originally appearing in the *Parent's Magazine*, this book serves its purpose of preserving for convenient

reference the advice and precepts of one hundred and thirty contributors on all the many questions that might arise in the management of children—physically, mentally and emotionally. The articles, which have been condensed and brought up to date for this edition, are short and to the point; all are cross-indexed under the titles, so that further information on the same subject may be readily found. From "Adolescent Boys," through "Headaches in Children," and "Prickly Heat," to "Youthful Chivalry," this volume contains a wealth of practical information based upon sound principles.

CLOSED DOORS. Margaret Prescott Montague. Boston: Houghton Mifflin Company, 1934. 218 p.

This collection of stories of children in schools for the blind and the deaf first appeared in 1915; a revised and enlarged edition comes with the flavor of a new book after this long interval. Poignant in their grasp of child psychology, the stories should help all concerned with handicapped children to think less of the handicap and more of the children.

A BRIEF HISTORY OF THE MASSACHUSETTS EYE AND EAR INFIRMARY AND OF THE HOWE LABORATORY OF OPHTHALMOLOGY. Boston: Privately printed, 1933. 23 p.

A history of 110 years of effort to preserve sight in Massachusetts follows the history of ophthalmology in this country, as well, for many of the leaders of the science of ophthalmology were connected with the Massachusetts Eye and Ear Infirmary and the Howe Laboratory; among them were Lucien Howe, Benjamin Joy Jeffries, Hasket Derby, Myles Standish, and George Strong Derby.

A STUDY OF SCHOOL HEALTH STANDARDS. Anette M. Phelan, Ph.D. New York: Privately printed, 1934. 249 p.

This volume is of special interest to readers of the REVIEW because the author, Dr. Phelan, has since become a staff member of the National Society for the Prevention of Blindness, and is engaged in incorporating eye hygiene in school health education.

The thesis, which was submitted for the degree of doctor of philosophy, presents a twofold purpose: first, discovery of the controversial issues in the available school health standards; and,

second, ways and means of clarifying the issues and resolving the controversies. The following extract from the review by Dr. Charles H. Keene, in the current issue of the *American Journal of Public Health*, admirably sums up the content of this painstaking study:

"This text is based on a questionnaire study of the opinions of sixty carefully selected individuals whose official positions and activities would seem to indicate that they were competent to judge of the needs of a school health program.

"Before arriving at the standards themselves, there is a good summary of much of the literature showing the development of school health procedures. This discussion and its bibliography are arranged conveniently in time periods.

"After discussing the Problem, and Consideration of the Results as a Whole, there are presented chapters on the comparative merits of work done by professional and by lay workers, in the hygiene of the school plant, on the classification of children and special education, and on a group of other school health problems, such as health of teachers and health education materials. The chapters on school plants, on classification of children and special education, and on the health of teachers and the use of health teaching materials are the most worth while of the text."

Contributors to This Issue

Dr. Walter H. Snyder, who is an ophthalmologist in Toledo, Ohio, is president of the Ohio Commission for the Blind.

Dr. M. Meissner is the director of the Institute for the Blind in Vienna; his article is translated and interpreted by **Dr. E. V. L. Brown,** who is professor of ophthalmology at the School of Medicine of the Division of the Biological Sciences at the University of Chicago, and secretary to the board of directors of the Illinois Society for the Prevention of Blindness.

Miss Margaret M. L. Catton is director of social service of the Hospital Social Service Association of Hawaii, in Honolulu; **Mrs. Dora Zane,** who spent some months in the United States preparing herself to do special work in prevention of blindness, is medical social eye worker at the Queen's Hospital in Honolulu.

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Miss Catharine A. Flanigan is a sight-saving class teacher in Schenectady, New York; the demonstration sight-saving class at State Teachers College, in Buffalo, was conducted by her this past summer.

Mr. Lewis H. Carris contributes an editorial, not only as managing director of the National Society, but also as a lifelong participant in the pedagogic field—as teacher, as principal, and, later, as superintendent in the public school system.

Among the book reviewers: **Dr. Harry Vanderbilt Würdemann,** author of *Injuries of the Eye,* has recently been elected president of the Seattle chapter of the Pan-American Medical Association; **Dr. Anette M. Phelan** is a staff associate with the National Society for the Prevention of Blindness; **Dr. L. Bothman** is on the faculty of the School of Medicine of the University of Chicago; **Dr. Edward S. Parsons,** president of Marietta College, is a widely known authority on Milton.

The Broad Basis for Prevention of Blindness*

Edward Jackson, M.D.

THE organized forces engaged in the struggle to conserve sight are constantly finding new ramifications and new opportunities in this field

COMING together in annual meeting, as workers for a common purpose, it is well that we who daily are busy with details and individuals should be reminded of the greatness of the work in which we are engaged and its broad importance to our fellow men. Blindness has been known from time immemorial. The blind poet of Greece, the Code of Hammurabi, the ancient papyri of Egypt, the allusions to blindness in the Pentateuch, and in the New Testament, show that the existence of blindness and the gravity of such a disability were well known to ancient writers and to those for whom they wrote.

The importance of blindness has been understood and taught from generation to generation, has loomed great and awful in the traditions and records of historic time. It still may drag down its victims to poverty, dependence or defeat; and threatens to each coming generation a sad proportion of difficult, limited and blighted lives. The wide, popular understanding and dread of blindness imply a wide interest and support for its prevention: support and approval that should now be as wide and as earnest as the fear and pity that blindness has excited in the past.

Out of the ocean of oblivion arose the belief in magic—a belief in the existence of unknown powers that could be propitiated by sacrifices and charms; from this belief grew religion, with its priests, and medicine, beginning with Imhotep in Egypt and Hippocrates in Greece as its first teachers. From ancient sacri-

*Presented at the Annual Meeting of the National Society for the Prevention of Blindness, December 6, 1934, in New York City.

fices and incantations it has been a long advance to the draining of malarial swamps and the building of hospitals. The eye of Horus became in Egypt the emblem of loyalty and sacrifice. The value of sight created the sun myths that grew up in every quarter of the world. All through human history the importance of vision has been recognized. Today, with our forward look, we turn from miracles to restore sight, to the new wisdom of preserving sight and keeping it at the highest possible degree of efficiency.

"Babies' Sore Eyes"

It has already been proved by an older generation, some of whom are still among us, that the prevention of blindness is a perfectly rational and practical enterprise. Crédé published in 1884 his plan for preventing ophthalmia neonatorum. The medical profession tested it and, in 20 years, has proved its value. A young mother bringing her first-born, before it was a month old, to ask for something to be done to save it from lifelong blindness, caused by ophthalmia neonatorum, was a most pathetic sight. Every ophthalmologist who had to reply "It is too late," realized that prevention of this kind of blindness was a most urgent need; and he did not hesitate to demand legislation and to undertake public education to bring it about. Twenty-seven years ago, almost 30 per cent of the children entering schools for the blind in the United States were blind from birth infection. Now, less than seven per cent of new entrants in schools for the blind lost their sight through this infection. Though this is a remarkable reduction, we cannot feel our goal has been reached until the percentage is infinitesimal.

Trachoma

More than 3,000 years ago trachoma was causing blindness in Egypt. Some of the remedies then used in its treatment are still relied upon to check its course. When Napoleon invaded Egypt, and a British army was sent there to drive him out, both armies came back bringing so much trachoma to France and England that it was more common for a whole generation than it had ever been before. In a single battalion of infantry returning from Egypt, 636 had ophthalmia, a mixed infection of purulent ophthalmia and

trachoma; and of these 50 were dismissed, blind in both eyes, and 40 blind in one eye. The ophthalmias thus imported led to the founding of the infirmary that grew into the Royal London Ophthalmic Hospital (Moorfields).

It has been learned by those who have had much to do with trachoma that spread of infection can be prevented if the affected eyes are regularly treated. It is the untreated eyes that infect others; and this fact has been the basis of control of the disease. In London, in 1904, the children in the County Councils Schools who were affected with trachoma were taken out of these schools and placed in two trachoma schools, under a regimen of regular treatment of the diseased conjunctiva. At first the schools were filled—625 pupils—but later the new cases almost ceased to appear. In 1918, since there were only 186 entries, one of the schools was closed. In 1921 it was found that there were not enough cases of trachoma to fill even one school, and children from other schools were brought in. In 1924 an epidemic of acute trachoma was discovered near the docks, 215 cases in all. These were brought under treatment in the school at Swanley. The epidemic was confined to the original area of its outbreak, and ceased by the end of the year. In the five years 1925–1929, only 104 cases were found in a school population that averaged 650,000. In 1931, N. Bishop Harman, who had been active in the whole campaign for prevention of blindness, could well write: "Trachoma is practically extinct in England."

The history of trachoma in the British and American forces in the World War, as told by our late colleague, Col. George S. Derby, is equally inspiring. Of several thousand men brought into France from Egypt to serve in the labor companies, 19 per cent had active trachoma. Among over 100,000 from China, more than five per cent had active trachoma. The trachoma ranks were also recruited from other parts of Africa. The danger of spreading this disease was promptly recognized and efficiently met. All cases of trachoma were segregated in "trachoma companies"; the doubtful cases were sent into other companies; and the uninfected in "clean companies." Every day the trachoma companies were lined up for treatment, and given clean towels in exchange for their dirty ones which they turned in. "No case came to notice of

the disease's having been spread to the civilian population, or to troops." The sufferers from trachoma came out of the war with better eyes than they had when they were brought to France. Among the soldiers brought to France from Africa, India, or eastern Europe there was little trachoma. These men had previously been under military discipline, including medical inspection and care.

In America, trachoma has been a problem only in certain groups. In the Philadelphia clinics, forty years ago, practically all the recent cases were in immigrants who came for treatment with a history of having arrived by steerage from Europe within the past few months. Except for such importations, trachoma has been rare in our northeastern states. But in the southern Appalachian mountains, trachoma has become a serious cause of blindness. It has extended from that region across southern Indiana, Illinois, Missouri, Arkansas and Oklahoma. In Kentucky, the systematic attack on trachoma, made by the late Dr. J. A. Stucky, continued and extended westward by the United States Public Health Service, has fairly completely controlled trachoma.

Among Indians living on reservations, trachoma has become almost universal. The only Indians in the United States that were found free from trachoma, by Harrison, were the relatively small number of Chippewas, living on the north shore of Lake Superior, and engaged in lumbering and fishing. In Colorado and the Pacific Northwest the worst cases of trachoma of late years have been among Indians.

In the South the Negroes, even those of mixed blood, are almost entirely immune to trachoma. From the rarity of trachoma in Switzerland it was thought that high altitudes prevented it. But in the Rocky Mountains this is not the case. It can be as bad there, one or two miles above, as at sea level. The conditions that favor trachoma are low standards of living, especially overcrowding—whether in tepees, mountain cabins, or city tenements—and lack of personal cleanliness.

An interesting epidemic of conjunctivitis in horses, cattle and dogs in California was studied by Eaton. In a valley 5,000 feet above sea level, this epidemic had followed the bringing in of horses from Illinois and Kentucky, where trachoma was common;

and a biting fly appeared in the valley at the same time as the horses. This form of follicular conjunctivitis was marked by scar tissue, entropion, trichiasis, pannus, corneal ulceration and opacity. Pathologic identity of this disease with trachoma has not been established; but this is also true of many other conditions that were supposed to show the true nature of trachoma, such as the Noguchi *Bacterium granulosis* and the inclusion bodies of Prowazek. There is room and need for wide biologic research with regard to cause and essential nature of trachoma.

General Diseases Affecting Sight

Among the blind in my state of Colorado, at least one, and probably two, per cent are blind from smallpox. I have reported the case of an Irish woman who had never been vaccinated, and never had smallpox until she was 75; and then lost both eyes from it. In southern Colorado, in a region where there are few doctors, there are many Mexican sheep herders. Among these, cases of smallpox occur almost every year. Such isolated cases have started epidemics in Denver, where the public activities of the League for Medical Freedom and Christian Scientists have hindered vaccination, as much as the "conscientious objectors" have in England. Before vaccination became general in Europe, smallpox caused one-eighth to one-sixth of the blindness, as it still does in parts of Russia and China.

Diseases of childhood, such as measles, scarlet fever and diphtheria, and occasionally mumps and whooping cough, may cause blindness. This fact should be remembered and emphasized by all who are working in the general promotion of public health.

Statistics on Causes of Blindness

Blindness is thought of as the affliction of age. This is not because Shakespeare began his description of the second childhood as "sans teeth, sans eyes," nor because glasses were worn by the aged hundreds of years before myopia was understood, or astigmatism or hyperopia was discovered. The increase of blindness with advancing years is shown in all the statistics of the relative

frequency of blindness. Once all diseases and calamities were ascribed to visitations of the gods. At that time it was logical to think of blindness as a necessary result of age. But now that we recognize the relation of "cause and effect, the chancellors of God," we must think of it as evidence of neglect of reasonable care. Harry Best, in his recent book, *Blindness and the Blind in the United States*, published this year, finds by his conservative estimate that 72 per cent of all cases of blindness are preventable, and that, with advancing knowledge and increasing care, practically all blindness may be prevented. We are engaged in a great field and an expanding field of human service.

Advances in knowledge and achievement are brought about by observing, correlating and using facts, methods and opportunities, previously thought unessential, or not important; and this is the path of progress in the prevention of blindness. We must have more accurate, explicit and reliable statistics of blindness as it now exists in our country. The statistics we now have compare well with those of other countries; but they are not sufficient to give a reliable basis for effective and economic general prevention of blindness. The first statistics of the kind in America were those secured for the State of New York in 1907, when Winifred and Edith Holt, in co-operation with Dr. Park Lewis, made effective the New York State Commission to Investigate the Condition of the Blind. A national investigation of the same nature is needed. There is an active Committee on Statistics of the Blind, operating as a joint project of the American Foundation for the Blind and the National Society for the Prevention of Blindness, which has assumed responsibility for getting improved statistics. This Committee, which represents the fields of ophthalmology, social statistics, work for the blind, and prevention of blindness, is working in close co-operation with the Section on Ophthalmology of the American Medical Association. For the present, the Census Bureau has discontinued special studies of facts about the blind. If and when the Census Bureau resumes its activity in this field, it is hoped that it may be carried on by those who have expert knowledge of the causes of blindness—not by enumerators appointed by political favor or because they have passed a general civil service examination.

The Ophthalmologist and the Prevention of Blindness

The prevention of blindness is something that extends beyond the boundaries of ophthalmology, and beyond the usual planning for public health. It must invade the daily life of the individual and secure an influence that will make living accord with all the personal health needs of the individual. In this connection, the close association of vision with psychology must be remembered; as well as the fact that human vision, evolved to utilize full sunlight, requires standards of illumination not yet commonly understood even by illuminating engineers. But within the scope of ophthalmic practice, and in the field of general medicine, there is plenty of opportunity for effective work in the prevention of blindness.

The routine work of the eye physician, or the ophthalmic surgeon, includes a great deal that is important and significant, as work in preventing blindness. Even when blindness had already occurred, it is not so much that the patient is blind now, as whether he must be blind for the remainder of his life, that demands attention. Cataract, which now heads the list of causes of blindness, is important, not for the disability it causes today, but for the disability for all the days and years that are to come. The need to prevent blindness for the remainder of life has called forth the efforts of specialists for thousands of years, and still stimulates effort to perfect the finest details of ophthalmic surgery. The treatment of glaucoma is still more an effort to prevent threatened hopeless blindness than to give relief from immediate pain. Laquer held his own glaucoma in check for five years by use of eserine; and then went to Horner for the operations that prevented blindness and gave him thirty years of useful professional life. In countries where trachoma prevails, many operations on the eyelids are done to prevent damage to the cornea and subsequent loss of vision. In cases of papilledema, or choked disc, decompressive trephining and removal of brain tumor may be performed to prevent blindness, even when they cannot greatly prolong life. In renal-vascular disease and essential hypertension, the threat of blindness is often the most important indication for active and persistent treatment of the disease. Suddenly failing eyesight may force a negligent diabetic to active measures for the prolongation of his life.

Nutritional and Chemical Research for Future Prevention

The danger of blindness, clouding the later years of life, demands for its prevention still wider planning and preventive activity on the part of the ophthalmologist and the general physician. The causes of cataract and glaucoma are still imperfectly understood. Enough, however, is known about them to warrant the belief that a broader, more accurate knowledge of the process of nutrition of the eye will make possible the prevention of blindness from these diseases, without waiting for emergencies that must be met by surgical operations. It is certain that in some cases the progress of senile cataract and of early attacks of glaucoma, has been checked by removal of eyestrain. This remedy must be carefully applied much more widely than has yet been done, before we can properly estimate its value for prevention of blindness. Its importance in myopia and conical cornea has been demonstrated.

Minute studies of the biochemistry of ocular nutrition, especially of the crystalline lens, the aqueous and vitreous, and the functions of the choroid and retinal pigment epithelium, will certainly help us toward the prevention of blindness. It is likely that both diet and general elimination can be so controlled as to lessen the dangers of blindness with advancing age. Exercise and healthy nutrition of the nervous system need especial attention with advancing years. The optic nerve and retina are parts of the nervous system liable to atrophy and degenerative changes toward the latter end of life. New investigations are needed to learn what must be done to preserve the health and functional activity of these essential parts of the visual apparatus. With age, the pupil gets smaller, admitting less light, and the retina becomes less efficient and prompt in its response to light. The amount of light habitually used is often not sufficient for young eyes, and needs to be decidedly increased as the eyes grow older.

Senile Visual Impairment Accumulative

The poor vision of old age often comes as an accumulation of the strains upon vision that have occurred in a lifetime. Many of them have been slight and most of them are forgotten; but accident, general disease, poor health, over-use and incomplete recovery from temporary disability, all add up toward the final

result. For a time the slow impairment does not prevent the regular use of the eyes, but as the eyes become less able to do the work required of them, the continued use becomes more and more harmful, and they may seem to give out suddenly. Blindness may come late, or not at all, but often it may be traced back to accident or disease, not effectively treated many years before. Whatever can be done to make more general the skilled and thorough treatment of slight lesions of the eye will help toward the prevention of blindness. The person most interested in the prevention of blindness, and most completely aware of any factor that may help to cause blindness, is the patient himself. The measures for preventing blindness must include close co-operation between the patient and his medical adviser, and appreciation of the possible dangers of what appear to be slight lesions.

School's Responsibility for Prevention of Blindness

No scheme of education is good that does not prepare the pupil to deal with the dangers and emergencies of life. Every child in school should understand what is good vision and how the eyes must be used to help it. The examination of the eyes of all school children, and what can be taught them in the making of such examinations, are extremely important steps in the prevention of blindness. Knowledge is the best protection against causeless alarm and ignorant recklessness. The "fuss made about slight eye defects in school" is the best provision to secure wise care of the eyes through the long years that go before age shows the culmination of slight injuries by accident and disease. Next to the patient's care of his eyes must come the alertness of the family doctor to the danger of neglect of what may seem to be slight injuries or symptoms.

This airplane view of the field in which we are working for the prevention of blindness gives an impression of its extent. But it would be incomplete without mention of the direction in which most important work is yet to be done. The greater part of life-long blindness is due to congenital blindness and ophthalmia neonatorum. The important causes of these are known. The attack of the latter has already been met, and its disastrous activity limited; but we are only recently beginning to understand

that congenital cataract is commonly due to parental syphilis. In a large part of the cases it is accompanied by a congenital defective development of the retina and other parts of the central nervous system. The prognosis for sight, after the removal of congenital cataracts, is necessarily less favorable than for senile or traumatic cataracts. The effort to prevent blindness from these causes brings us in close alliance with those who are working for the full control of social diseases. It places us in line, in co-operation and sympathy, with those who are striving to bring about higher standards in all branches of human life. The greatness of our undertaking should inspire us with courage and strong determination to go forward and finish the task in which we are engaged. But contemplation of the greatness of our objectives must not divert us from the work that lies immediately at hand—the gaining of better vision for the generation that we now have about us, waiting for help to make the best of their new lives—the school children of today.

In an age and civilization that provides standards of vision which the race as a whole has not yet attained, no one who works for the prevention of blindness can help realizing that those who are absolutely blind form only a small minority of the number who need visual help. It is a duty placed directly upon us, to make sure that those of the growing generation have the best visual ability and resource that we can confer upon them. We must do what we can to break the chain of inherited deficiencies of physique, mentality, ignorance, status, fortune and culture. In so far as we can do this we achieve a vital success. By removing inherited handicaps the "new deal" becomes the "square deal"; and we contribute a solid cornerstone to the building of the future. "As you would that others should do unto you, do ye also unto them."

The Philosophy Underlying the Education of the Visually Handicapped*

Gladys Dunlop Matlock

THE aim of sight-saving class teaching is identical to every educational goal: the development of the individual to his own highest level of achievement. Vocational training and guidance are phases of special education needing greater study and more emphasis

IN attempting to discuss the philosophy underlying the training of partially sighted children, we must ever be mindful of the existing general philosophy of all educational training.

In these days when education is defined in terms of life itself, or as the "full harmonious development of the individual," one could scarcely deny special educational facilities for those suffering from serious visual difficulties. Without special attention, these children cannot succeed in regular classes. This is proved by the fact that in former times many partially sighted pupils were referred from public schools to institutions for blind. Realizing how inadequate and unfair this training was for those with partial vision, leaders in work for the blind were the first in this country to demand a new type of training for those children who did not belong in the world of the blind but who, because of poor eyesight, could not adjust to the ordinary classroom demands.

What Is a Sight-Saving Class Child?

As the work developed, each community set up standards or guides for admission. These varied considerably as to the type of child that should be enrolled in the classes and there is still some variation of opinion as to what is termed a "sight-saving class

* Presented at the International Council for Exceptional Children in Toronto, Canada, February 22–24, 1934.

child." In the minds of some individuals, a visually handicapped child is provided special attention only when he is on the border line between the sighted world and the world of the blind. In these instances, more or less the same techniques and procedures are now employed as are followed in Braille classes. However, it should be realized that there is also a large group of children who, to the average person, appear to get along very well in the regular grade. It is with difficulty that they are discovered but they really need sight-saving class advantages. A real distinction must be made between Braille and sight-saving class groups, and the principal distinction is that the latter children are seeing individuals and must be so taught, while the concepts for blind are presented through the tactile sense.

Guides for admission to sight-saving classes were suggested by doctors, supervisors, and teachers familiar with the work, meeting at Chicago with representatives of the National Society for the Prevention of Blindness, in the summer of 1928; they advise that in addition to all children having 20/70 or less vision in the better eye after correction, any child should be admitted to a sight-saving class who, in the opinion of the ophthalmologist, would profit by this type of training. These guides further suggest that each child must be considered as an individual. We know that there is a vast difference between what we may term as good vision and efficient vision, and that many children whose vision tests fairly well on the Snellen test chart may manifest serious difficulty upon close application to school work. This, then, suggests that in addition to the eye difficulty, much must be considered in making a sight-saving class recommendation. Attitudes at school and at home, the quality of academic work, mental rating, age, and the distance of the child's home from the class are all significant and should be considered and weighed by the trained supervisor or teacher in conjunction with the understanding oculist in making recommendations for placement.

Personality Adjustments in the Sight-Saving Class

Someone has said that "the chief aim of education is to realize the fullest satisfaction of human wants and that by attempting to satisfy the wants of all human beings, the desires of each of us will

be most fully satisfied." Assuming this to be true, surely the program for any handicapped child needs no further justification.

We know that without special educational facilities the partially sighted child fails in his normal school situation. Details might be given on the reduction of school failures, the conquering of behavior difficulties, the successful placement of individuals in jobs as a result of the sight-saving programs, but perhaps the following story will suffice.

Donald, a round-faced, brown-eyed youngster of nine years, was referred to the Psychological Clinic for study because of serious maladjustment. Poor school work, lack of concentration, tardiness, truancy, misbehavior at home and at school were the complaints. It did not take the examiners long to discover that Donald could not see. Glasses were secured and some help given the mother from the behavior clinic. Since visual acuity was brought to 20/40, he was never referred to the sight-saving department for placement. However, the school continued to complain of difficulty and the sight-saving class supervisor was called in consultation. At a glance, she recognized the boy as a sight-saving class case because of his very heavy lenses. A recommendation for placement in a class was completed, and a transfer effected without difficulty. In spite of almost an hour's ride on the street car, Donald was never tardy; he was never truant; and from the day he entered the sight-saving class, there was marked improvement in his school work. In fact, his mother stated to the teacher on one of her early home visits, "He is so happy I wish I might send the rest of the children down." The boy has been promoted regularly and frequently has been on the honor roll. When asked why he particularly liked the sight-saving program he said, "I have made many good friends and before all I could make was enemies." The security which he found in an understanding teacher and the satisfaction which developed from successful experiences, of course, explain his satisfactory adjustment.

Special Teaching Methods and Materials

Specific aims of these classes are: (1) to teach the boys and girls that they are in a very large measure responsible for the conservation of their own vision; (2) to provide pupils the opportunity of

making normal school progress; and (3) to guide them through their school years in order that each may select his vocation wisely with respect to eye condition.

In order to carry out this program, rooms with special equipment must be provided. Particular attention is directed to adequate lighting, both artificial and natural. Perhaps of most importance is the special teacher who understands diagnosis and prognosis for each case and is able to adapt the entire school program to the needs of the individual.

In any discussion of a sight-saving program, there usually arises the question of whether these pupils should be educated in day classes or in institutions. As stated previously, many of these children cannot be easily detected from others in the school system wearing glasses, and it is a foregone conclusion that parents would not submit to institutional training for such children. Furthermore, it is the conviction of those who work with the visually handicapped that if we institutionalize a partially sighted or even a blind child, we attempt to educate him in an environment quite unlike any situation he will meet upon finishing his school training. The day school plan, with its co-operative activities, provides social and academic competition with children with normal vision. Moreover, family ties and responsibilities should be kept alive whenever possible and particularly is this so for the handicapped individual. Another point which has a very large bearing on this question is cost. To this, educators must give careful attention. We have no figures on institutional training for sight-saving class children, but it is natural to assume that any institutional training which includes board and maintenance for all children would very largely increase the costs over the present day school programs.

Administration of Classes

State and local control is believed most satisfactory for the sight-saving group. Local authorities are acquainted with local situations and should be responsible for their share of the costs. However, since state laws compel education for all children, it is reasonable to expect the state to bear its share of expense in providing training for the visually handicapped, for, without subsidy, many of the smaller communities would be unable to furnish this

type of education. A program under the supervision of the state may also be an economy measure, for more careful planning may be exercised with regard to placement of classes. Thus, with the support of the state a bigger, broader program may be developed for all communities with greater economy to the taxpayers.

Within the school system the sight-saving program should be what we may term a co-ordinated program. Education cannot be concerned with academic procedure alone; the eye condition, the general health, and the welfare of the family are problems of the school.

Home and School Co-operation

A certain routine may and should be developed with the local health authorities to locate all children in need of special assistance. Once the child is in a sight-saving class, the school or the teacher should serve as a co-ordinator between the home, the school and the doctor. Friendly home contact should be maintained through occasional mothers' meetings and frequent home calls. Many mothers do not know the importance diet plays in the cure of certain eye difficulties. Others become discouraged when required to return Johnny or Mary to the clinic week after week, and sometimes month after month. The busy doctor often takes too much for granted and fails to dwell on these matters so important to the care of his patient. Through her appreciation of the whole picture, her friendly home calls, and what she has been able to accomplish academically with the child who often in the estimation of his parents "just could not learn," it is the teacher and she alone who has persuasive powers to convince parents of the necessity of routine care.

The lunch program, where sight-saving class children receive warm nutritious food to aid in building a good physical body, with its resultant improvement in eye conditions, is another function which should also be assumed.

Special Means for the Common Goal

When we come to the consideration of courses of study, we must realize that there can be no reason for deviation from the curriculum set up for normal children except in certain studies which

require a large degree of close eye work. As Mrs. Hathaway so aptly stated in a recent article: "It is evident that curriculum problems for sight-saving classes are concerned with adjustment rather than with the building of a new curriculum. The teacher's aim is to so adjust the regular school program that her pupils will get the greatest benefit, with the least possible eyestrain."

To illustrate: If we are to be concerned about "eyes first" and "education second," the sight-saving class child must be deprived of reading for pleasure. Reading for the sight-saving class child should be a tool subject, for to him sight is much more precious than any pleasure that could be derived from reading the best of literature. This deprivation seems very great and almost unfair, but viewed in the light of the aims of any sight-saving program, it is only just and sane. The real sight-saving class teacher realizes the necessity of having the child reach this point of view himself. She therefore discourages reading for pleasure, but directs attention to the worth while radio programs of various descriptions, and to the free lectures to which the pupil can listen and benefit greatly. Doubtless, all of us have been slaves to books, and perhaps for all children more emphasis could be placed on expression in its varied forms rather than that which comes solely through the written page. There would be compensations from a visual standpoint, not to mention the growth in individual creative ability.

Creative Expression

Sight-saving classes have carried on what is known as handwork for many years. Because emphasis has always been placed on the use of crude material and since it was designed to provide satisfactory interest for the child during his leisure time and relief from close eye work during school periods, it may well be considered under the caption "Creative Activity."

In the columns of our press almost a year ago, there appeared the following statements: "It may be the machine age for the adult, but not for the child of today.

"Handwork gives the child more self-confidence than any amount of mental or machine activity could inspire. There is assurance for the child in seeing what he can fashion with his own hands. It encourages creative powers and often brings out latent talent."

Who needs encouragement more than the sight-saving class child who, perhaps new in the school environment, is just finding his real self? And certainly we need to use every possible means to determine whatever aptitudes these handicapped pupils may have.

A young boy, suffering from tuberculosis, said just the other day, when given material for construction of bird houses, "I don't know how, but I want to learn. Busy hands make busy minds, and a busy mind makes you forget your own troubles." With all physically handicapped individuals, good mental hygiene is necessary. It would seem that the creative program helps to solve this problem and is another means of emphasizing ability rather than the handicap.

The creative program may follow many lines of activity. One intermediate school sight-saving group practically landscaped one side of the building, having gathered seeds, plants and some ideas from the original school garden. Here, the children learned how to prepare the soil, how to handle plants and seeds, and best of all, became interested in a hobby which will provide splendid activity for leisure time.

Development of Vocational Program

It is often said that "a democracy is no stronger than its weakest link." Let us hope that this is not true of the sight-saving class program, for we recognize full well the weaknesses of the vocational side of the program. If this be true, let us set about to strengthen this weak link in order that our ambitions for these children be fully realized. There are two reasons why it has been difficult, even in normal times, to place sight-saving class children on satisfactory jobs: (1) the jobs that the partially sighted can perform in industry depend so much on the individual eye condition: (2) those who know the eye conditions do not know the types of work available and the amount and kind of eye work each entails. Aid could doubtless be secured if there were some studies made by placement agencies in collaboration with ophthalmologists or organizations for prevention of blindness who thoroughly appreciate eye conditions.

Another thing which sight-saving classes may well do is to use to their advantage the vocational schools now set up in our public

school systems. Only two vocational sight-saving classes exist—one for boys in Cleveland, Ohio, and one for girls in Detroit.

This is to be decried when passage of the Smith-Hughes Act by Federal government and other laws by various States accepting the terms of the Act indicate that vocational education has a place in every school system.

Vocational Training for Sight-Saving Class Pupils

It is believed that a sight-saving class group is representative of the normal group and, therefore, we find children who, beyond a certain grade, profit best by vocational, rather than academic training. It was for a group of this kind, six in number, that Detroit's vocational class was established in September, 1927. Changes have been made from time to time. Courses have been adapted to meet our needs and it has become necessary that the sight-saving class teacher teach one class in the regular school in order to carry on the program. At the present time, the enrollment numbers fourteen, and as we analyze our records, it is with satisfaction that we note the following:

Thirty-one girls have been enrolled at the school. Of this number, two left town, three returned to regular grade, and one left without completing any of the courses. There remained twenty-five who finished the training and for whom we should account. Eleven have been assigned to housework and child care, two are working in stores owned by their fathers. Four have been placed in food shops. Working permits were issued for two others but no actual information on placement is available. Three girls married and are in homes of their own. If we note these figures carefully, we shall see that all but three girls were given satisfactory jobs upon finishing school.

Less than a month ago one of our girls was placed on training in the bakery department in one of our finest apartment hotels. When the placement officer called on her, the girl told with great pride of making twenty lemon chiffon pies that day in addition to quantities of cookies, hermits, and other pastries. She was giving satisfaction on the job and spoke with real assurance when she said, "I can do anything here, there is everything with which to work," indicating that she had really learned how and all she needed was

the opportunity to show what she could do.

These are the results of efforts during a depression period when jobs have been few and normal individuals have been in the bread lines. True, not all have been placed, but the fact remains that they have learned something of working attitudes, the responsibilities which go with a job, not to mention many personal helps and suggestions for home responsibilities. Here, they have worked where they have experienced a measure of success and are facing the world with a sense of accomplishment rather than defeat. Such would have been the experience of the majority if a purely academic program had been followed.

Education for Useful Citizenship

Referring to a previous statement, if "the aim of education is to realize the fullest satisfaction of human wants," we cannot fail to emphasize the type of training which enables the boy or the girl to satisfy his greatest want—that of making a living.

This may sound like mere propaganda during this crisis in education, but many times this simply means planning more wisely and possibly a re-allocation of present funds.

Let us be sure that our program is a complete one, that we are really "teaching the business of living." As Dr. Rollo Reynolds of the Horace Mann School, New York, said in one of his lectures just the other day, "I want my child trained not only to know but to think and to feel, for as I feel so am I." Truly the philosophy underlying the education of the handicapped child should be just this, and out of this training should come worthy citizenship.

The Control of School Myopia

N. Bishop Harman, M.A., M.B. Cantab., F.R.C.S. Eng.

ALTHOUGH schools in England differ in many respects from those in America, this contribution from one of England's eminent ophthalmologists has many points of application in America. In order to give a panoramic view of the subject, the editors hope to publish a series of similar papers from other parts of the world

THE control of school myopia is a proposition that, in my experience, is easy in conception but difficult in performance. It is easy to conceive and to make arrangements in the schools so that the risks of school myopia will be reduced to a minimum. It is very difficult to control the progress of even low degrees of myopia in some school children.

The term "school myopia" has been attacked by some as begging the question. The objectors maintain that there is no proof that the school is the responsible or the dominant factor in the production of the myopia. They point to the occurrence of myopia in illiterates. Admittedly such cases do occur, but illiteracy is no proof of absence of close eye work. In any case, the numbers of these cases bear no comparison with the numbers of myopes to be found among the studious and scholarly. The fact that there are few, if any, cases of myopia to be found before the fifth year of age, the common date of the beginning of school life, and that thereafter there is a steady increase in the number of cases through school years, would seem more than a mere coincidence. Several causes—heredity, congenital defect, illness, bad social conditions, and too much close eye work—may contribute to produce myopia. School has a direct bearing upon all these conditions save the first, and even in that an indirect influence may be traced.

Some Predisposing Factors in Myopia

Our education and the choice of our life work is largely influenced by family tradition; the studious for the most part produce the studious and the outdoor worker the outdoor worker. Congenital defect as shown in astigmatism is, on the evidence I have obtained, a considerable factor in the production of myopia. In two investigations made to ascertain the proportion of astigmatic children among myopes the percentage found was abnormally high, in one 46 per cent, in the other 53 per cent. There was evidence that with the increase of school age the numbers of children with hypermetropic astigmatism diminished and those with myopia increased. Astigmatism may therefore be the foster-mother of myopia in susceptible children. Modern school conditions, with systematic vision testing, school clinics, the prescription of spectacles and the supervision of the work of dubious children, together form the means in our hands of controlling this cause of school myopia.

Illness is notoriously a common starting point of myopia or of the increase of existing myopia. Since myopia is due essentially to an unusual softness or a disease condition of the sclera, general ill-health may well be debited with a malign influence. We cannot prove the direct connection, save in some cases of interstitial keratitis, but cases of children who are known to have been free from myopia and in whom the myopia dated from an illness are too common to be negligible. In some it would seem that the myopia is associated with the skeletal overgrowth that sometimes follows long illness, in others it may be similar to the effect of prolonged febrile conditions on the heart which cause weakening of the mitral ring and so induce valvular insufficiency. In most I am inclined to think it is due to or aggravated by excessive indulgence in reading during convalescence. Soft-hearted parents indulge their children with enthralling story books, just when their eyes are least able to stand up under the strain. School is indirectly responsible for this, for there children are taught to read and to enjoy books, but not proper precautions in their use.

Influence of Living Conditions

For our purpose, I would define bad social conditions as the subjection of the children to conditions that are tolerable to adults

but injurious to growing children. During school medical inspection of the children of neighboring but dissimilar districts I was much impressed with the potency of this influence. One district was a notorious London slum, the other a model estate. The slum children who ran wild in the streets, when not in school or bed, were healthier on many points than the children of the estate, whose parents thought it was not respectable to let them play in the streets! It is this that explains the greater incidence of myopia in girls than in boys, and possibly also in some alien London children as compared with the children of native stock. Both are too house-bound. Girls are expected to help in the housework, the boys escape. Jewish children have not outlived the tradition of the ghetto and, in addition, the boys have evening classes in Hebrew which must be a strain. Nowadays we are well aware of the untoward effects of the deprivation of light and air; the house-bound suffer this loss as well as the strain of work at too early an age.

Effect of School Program

Finally, there is the effect of too much close eye work. The allegation that excessive eye work has a determining effect on the production or increase of myopia has been contested. Personally, I have no doubt of the injurious effects of prolonged, close eye work on susceptible children, and believe that this is a cause of and an aggravation to myopia. Also, I am convinced by such evidence as I have that the control of eye work is beneficial to myopes. There is ample evidence for this contention in our observation of the pupils in the myope or sight-saving classes. The evidence that an individual can collect is necessarily limited. But there is mass evidence from Sweden obtained through systematic school medical inspection before and after certain drastic changes in school methods. This evidence is dramatic and convincing beyond dispute. In that country improvement in hygiene and in school lighting, the abolition of the old Gothic type in favor of Roman, and the increase in outdoor sports have been followed by a reduction in the incidence of myopia which is remarkable. That the regulation of close work was a material factor in that reduction is evident, for it is reported:

"There is a 20 per cent greater decrease on the modern as compared with the classical side. Classical studies require closer attention to books, and entail the more frequent use of dictionaries, which are generally printed in small type. Greek especially presents a form of lettering entirely new to a pupil, and requires very close concentration."

The improvement in educational methods in the past 30 years has been wonderful. When first I engaged in school medical inspection, unsuitable school buildings were common; windows were too small for the size of the classroom, they were too often overshadowed by other buildings; children sat back to the light or even facing it; artificial lighting by ill-placed flickering gas jets was a travesty of illumination; slates were still in use; the print of school books had not been criticized; and there was no test of the fitness of the child for the work to be done. Now all that is changed. School hygiene has been placed upon a sound and practical basis; it has had a profound influence upon the school curriculum. Educators who were at first inclined to resent the invasion of the doctors into their domain now welcome him whole-heartedly. Could there be better testimony to his utility? Through improved standards of living and the combined efforts of the educators and the doctors there has come an incontestable improvement in the well-being of the children.

Myopia a Difficult Individual Problem

So far as control of school myopia can be effected through mass methods of educational betterment there is evidence that we are on the road to success. That is the easy part of our task. The second part of our work, the control of school myopia in individual children, is still a serious and as yet unsolved problem. We still get cases of myopia in children where there is a progressive increase of the short sight, notwithstanding meticulous care on the part of parents, teachers and doctors. Some of these children show no immediate hereditary tendency to myopia; physically they may be robust, and they lack no care. How are we to regard this apparent failure, and is there any remedy for it? We may perhaps seek comfort in the reflection that if there had not been all this care the progress of the myopia might have been greater, but that is

scarcely a justifiable way of escape. I am inclined to the view that there are some eyes in which there is a congenital inadequacy, just as there is in fibrous tissues elsewhere which leads to bent backs and flat feet. In such cases it might be well for the child to receive his education in the methods of the sight-saving or myope class. In yet other cases, where conditions and means allow, it is well to stop all schooling and reading (except *viva voce* teaching) for at least a year; let the child run wild, preferably at the seaside, and give iron in small doses over the whole period. Such a regimen may be a counsel of perfection, and its practicability needs to be weighed against the educational disadvantage involved, but where these arrangements could be carried out there has been evidence of a check to the progress of the myopia.

In conclusion I am prepared to maintain that the effectiveness of our methods for the control of school myopia is not to be judged by our failures but by our successes, and there is ample evidence that our successes predominate.

Eye Health for Atypical Children*

Lewis H. Carris

DESPITE the remarkable achievements of Laura Bridgman, Helen Keller and a few others, educators realize the special responsibility for conserving the vision of children who are deaf, or hard-of-hearing, or crippled, or mentally defective

PRIMITIVE man acquired his education by means of his five senses: the senses of touch, taste, smell, hearing and sight. Every one of his senses was important to him, for education in that primitive state was individualized and each man learned for himself, through trial and exploration, all that he needed to know about his environment. This method of learning about his environment is still seen in the learning pattern of the small baby. Looking at a new object does not satisfy the small child; he must feel its texture and temperature; he hits it against the floor or bed to hear its sound; he lifts it to his face to explore its distinctive taste and odor, before he willingly relinquishes it as a lesson learned.

Experience and social custom soon dispense with this sensory exploration of the environment, and perception comes to depend more and more upon vision, coupled with experience. Formal education, which is a projection of the instinct to explore the environment, has become, with the sophistication of life, more and more dependent upon the sense of sight as the chief tool of learning. It is estimated that normally about eighty per cent of impressions come to us through the eyes. This one fact is the greatest of all arguments for the conservation of eye health for every child whom the State undertakes to educate. For children who so differ from the so-called average that they must have a specialized type of education, the importance of eye health cannot be sufficiently stressed.

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Double-Duty Eyes

If the average child acquires eighty per cent of his education through his eyes, the handicapped child—the deaf or hard-of-hearing; the crippled; the mentally defective; the physically handicapped—is even more dependent upon the sense of sight for his education. The deaf child must see clearly if he is to benefit by the attempt of the State to educate him. He uses his eyes not only for reading and observation, but for hearing as well. His eyes, substituting for his ears, must learn to interpret the delicate and rapid movements of the lip and facial muscles so that he may follow speech and reproduce it. Visible movement is his sound, and his eyes must be forever on guard to follow it. Dr. Charles Scott Berry says: "Vision in the deaf and the hard-of-hearing does in a large measure the work of hearing. It is an important factor in relation to deafness and it is therefore especially important that a careful visual examination be made of all deaf and hard-of-hearing children as soon as they are discovered. Conservation of vision should go hand in hand with conservation of hearing. Without adequate vision, deaf and hard-of-hearing children are seriously handicapped in learning speech and lip reading."

The comparative immobility of the crippled child makes it necessary for him to use his eyes as a substitute for agile legs. Other children are able to run about their world; the eyes of the crippled child must help him bring the world to him. Reading and handwork, both involving close use of the eyes, must take the place in the life of the crippled child of the games, the exploring and climbing, the wider physical range of the normal child. Because his handicap prevents him from sharing many social and educational experiences, the crippled child must be encouraged to a wider field of reading, says the New York State *Bulletin* on the Organization of Special Classes for Crippled Children. In his leisure time activities, in his school work, and in his future vocation, the child who is crippled will need dependable eyesight. Conservation of that eyesight upon which extra burdens are thrown, is a crutch which will help to carry him over the gaps in his life caused by his handicap.

The success of the education of the mentally defective child

depends upon clarity and simplicity of ideas. If the eyes that carry impressions to the retarded brain are not functioning accurately, the image loses its clarity, and the efforts of the educator are to no avail. Sharp eyes, the sharp tools of the brain, are needed to make clear impressions on the dull and unretentive mind. The importance of detecting and correcting defective vision among mentally handicapped children is markedly illustrated in the report, some years ago, of Dr. M. B. Beals, supervising oculist of the Bureau of Child Hygiene in the Department of Health in New York City: "Out of 132 mentally defective children whom I refracted and for whom glasses were procured, 24 were found to be normal after relieving their eyestrain, and more than 65 per cent of them showed decided improvement."

At the other extreme of mental endowment are the gifted children whose minds develop quickly; who absorb at a glance; whose mental maturity leads them ahead so much more rapidly. If the sight is not accurate, the quick mind may be held back by learning and having to unlearn a mistake; while there are no conclusive statistics on the subject, figures have shown that gifted children are more than usually likely to be myopic, or shortsighted. Short sight is not an educational handicap, for the shortsighted eye easily adjusts itself to close eye work without special strain or fatigue. But the shortsighted child is frequently handicapped socially. In a vicious circle, he retires more and more from games and strenuous group activities, because he sees poorly at a distance, to absorb himself more and more in studies and reading, a field in which he excels. Every effort should be made to keep healthy the eyes of the gifted child so that he may realize to the fullest his special endowment socially as well as academically.

Inventory of Visual Powers

Ideally, every child should have a complete physical examination, including a vision test, before he enters school. It is even more urgent for the physically handicapped child to enter his school life with no defect uncorrected. Actually, the physical examination is often delayed, and the vision test may not be given until after school life is well started. Confronted with children with unmistakable handicaps, such as deafness, crippling, blind-

ness, mental deficiency, the examiner is so engrossed in the major disability that minor defects may be overlooked. Moreover, there exists a superstition that among the handicapped there is a balancing compensation in the other senses. Unfortunately, nothing is more fallacious. Too frequently the cause of the primary handicap is contributory to a lesser defect. Meningitis, often the cause of crippling, may leave the eyes impaired. Scarlet fever may weaken the eyes at the same time that it deafens. Birth injuries, the cause frequently of limited mental capacity, may also limit vision. Among the children physically below par—the cardiac, the tuberculous, the undernourished—associated eye defects and diseases are noted. Statistics collected over a period of years show that from ten to twenty per cent of school children have visual defects; the percentage is probably higher among those with palpable handicaps.

Physical examinations under the direction of a physician should be routine procedure in a class whose pupils deviate from the normal. The physical examination should include a test of the vision and an examination of the eyes. When this ideal test of sight and eye health is not possible, the classroom teacher must feel more completely her responsibility for detecting and routing for diagnosis and correction the child with defective vision.

Some years ago a technique for testing the vision of young children was developed by the National Society for the Prevention of Blindness. Instead of the usual Snellen letter chart, the letter "E" is used in various positions; children as young as three years old have played this game test with accurate results, and its feature of demanding a single response to a simple question is equally helpful with children of limited intelligence, with children who are mute, and with those whose early education has been so neglected that they do not know their letters. A pamphlet has been prepared outlining the method of giving the test and scoring it. Children who do not meet the qualifications of this test are obvious candidates for ophthalmological examination.

Teacher's Responsibility in Eye Health

The responsibility of watching for signs of eyestrain and visual defect lies heavily upon the teacher of special classes. Not only

will she make, when necessary, the vision tests, but she will watch for certain signs and symptoms that lead her to suspect eye trouble, and route for ophthalmological examination any children showing them. Inflammation of the eyes, frequent styes, spasms of the lids and twitching of the facial muscles may be symptoms of eye disorder. Marked inability to learn to read, writing with little regard for lines and spaces, lack of concentration, and emotional instability may be the results of eye defect. Before condemning a child as stupid, inattentive, or troublesome, vision defect should be definitely ruled out.

Every classroom where children are studying should be arranged to prevent eyestrain and to minimize eye fatigue. The teacher of the special class must be aware of and put into practice those standards of eye hygiene which will prevent undue eyestrain. Good natural lighting adequately supplemented by artificial illumination for dark days, is a prerequisite for the maintenance of eye health. Standards which have been evolved by lighting engineers, educators and eye specialists require, at least, a range of from eight to twelve foot-candles of light in the classroom.

So that she may know, and not roughly estimate, how much light is falling on a particular place, the teacher will find a light-measuring device of great help. A small light meter, using the photoelectric cell to measure light, has recently been perfected; it is small enough to carry easily in the hand; its readings are uncomplicated; and it is comparatively inexpensive. It is marked "for ordinary eye work," for "close eye work," and may be used by the children themselves to check lighting arrangements.

Making the Most of Environment

Frequently schoolrooms are designed to provide good natural lighting, but the facilities are not fully utilized by the teacher in charge. The good effects of adequate light are completely canceled if the light is translated into glare. If the deaf child is trying to catch the small movements of the lips, no amount of light will help him to catch every word if the light is reflected into his eyes from a shiny desk top. Woodwork and walls should be finished in a dull paint to prevent excessive glare. Books printed on shiny paper reflect light in the same way and prevent seeing. In special

classes where it is possible to have an informal and flexible seating arrangement, special care must be taken that no child faces the light source directly, and that no child sits in his own shadow. A particularly helpful outline on classroom lighting is *Standards of School Lighting*, published by the Illuminating Engineering Society. Another statement on eye hygiene in the schoolroom is *A Program of Eye Health in a School System*, published by the National Society for the Prevention of Blindness.

Integration of Eye Health Education

Freedom from eyestrain is closely linked with the practice of periods of eye rest. In classes for children who are physically below par, the rest period or nap period is well appreciated. When there is no special period for relaxation, the teacher can plan the day's program so that periods of close eye work alternate with periods of comparative eye rest. Learning to relax the whole body and to relax the eyes is a valuable lesson to the child who, because of a physical or mental handicap, is more than usually highly geared.

Not only will the teacher of the handicapped child try to provide him with school surroundings which make every contribution to eye health, but she will provide him, too, with the information, and develop in him habits that will contribute to eye health at home and in his after-school life. Good lighting and a consciousness of its lack; well printed books; eye rest periods; all the many factors which go to make up a program of eye health in the classroom are of no avail if they do not become part of the child's own life. Through example, through increasing responsibility for his own eye health, and through study of the physiology of sight, the child will develop those desirable habits which will help him through life to maintain his so necessary eye health.

The Doubly Handicapped Child

It may be that among the children in her special class, the teacher will find one or more children whose vision is so poor that treatment and correction by glasses are impossible. In the average group, it has been found that one child in 500 has vision so poor that he needs special educational equipment and special techniques.

Among children already handicapped the percentage may be higher. Such systemic diseases as meningitis, congenital syphilis, birth injury, once they attack the eye, rob it forever of some degree of sight. For children who are otherwise normal, the sight-saving class has been established. When the child has another handicap, such as deafness, mental deficiency, or is crippled, these special sight-saving class methods of teaching may be adjusted to the individual child in the special class. Large-type books used by the sight-saving class children may be obtained for the child with seriously defective vision in the special class. Sight-saving class children do much of their written work on typewriters with giant type; material that is not available to them in large type is either copied in large type on the typewriter or read aloud to them. In communities where there is a sight-saving class, the teacher of a special class having a child needing this adjusted material will be able to make a co-operative arrangement with the teacher of the sight-saving class. If there is no sight-saving class near by, the Bureau of Special Education of the State Department of Education will assist the teacher to make the needed arrangements for the doubly handicapped child.

Each one of the children, called for classification purposes atypical, has within himself the possibilities of becoming a useful, integrated citizen. In caring for the crippled body, we must beware of crippling the soul. Let us build not upon the handicap but upon the remaining strength. We have before us daily the example of a man whose handicap would have excused him from making any personal mark in life; yet it is to that man that millions in this country look for salvation and deliverance from the tangled state of our affairs. Each of the children whom you teach has the right to look forward to a life of accomplishment at his own highest level, to a life of satisfaction with that accomplishment. Every effort that you bend to help in this accomplishment is aided through building and maintaining eye health.

Your Eyes and You

Charles A. Bahn, M.D.

THE sensitivity of the eye to disturbances in remote parts of the body is reflected in its reaction to focal infection, to poor personal hygiene, and to emotional factors

DO YOU know that approximately six of every ten persons who consult an oculist have some condition elsewhere in the body which may affect the recovery of their eye symptoms? This condition is often a slight dysfunction which is associated with physical and mental living habits of the present and past. Frequently, oversensitiveness and irritability of the eye are but a part of the same oversensitiveness and irritability all over the body, somewhat more marked in the visual mechanism.

Emotional Strain and the Eyes

The poor investment of health and happiness, which is sometimes completely beyond our control, plays a more important part in the premature aging and dysfunction of nearly all parts of the body, including the eyes, than is generally believed. Many of the greatest medical achievements of the future will evolve from this basic idea.

Not long ago, a patient, let us call her Mrs. Jones, began suffering from headaches after reading a few moments. She needed only proper glasses which I prescribed and which she wore constantly, obtaining prompt and complete relief. After a month she began wearing the glasses only for close use, with continued complete relief. Several months later, however, her husband lost his position, and within two weeks her headaches promptly returned. After a re-examination showed that the glasses were practically correct, she began wearing them again constantly with partial relief. In several weeks, her husband secured another position,

and within a few days the headaches ceased completely. They were obviously due partly to eyestrain and partly to a general nervous irritability associated with fear, loss of appetite, etc., and other factors surrounding her husband's economic status.

Fortunately for both physicians and patients, our repair plants often effect marvelous temporary and permanent cures after only partial eradication of underlying causes and sometimes without that; but there is a limit even to nature's ability at health restoration.

Mr. Green's left eye suddenly became painful and the vision blurred. He had an iritis, a poisoning of the eye from elsewhere in the body. He had not one, but four, possible sources of poisoning: several dead teeth with abscessed roots; chronically infected tonsils; a diseased appendix; and lowered vitality from too much tobacco, alcohol and caffein, insufficient outdoor exercise, a badly balanced diet, etc. The teeth were unquestionably the worst sources of infection, and as they could not be safely saved, I advised their removal. In addition, I recommended common sense in his living habits and, later, removal of tonsils and appendix if necessary. The eye, as frequently occurs, was worse for a few days after the removal of the infected teeth, after which it promptly got well and has remained so for the past year. He insists on retaining his appendix and tonsils and is even unwilling to minimize infection from these sources. Unless normalized or removed, they will cause another chapter to this story at some future time when his vitality is again lowered.

Eyestrain and Poor Health

Medical, surgical, optical, and hygienic treatment of the eyes frequently gives complete relief to the eye and other symptoms, even when extra-ocular factors are causative.

Miss Graham, a stenographer, was fitted with corrective glasses some months ago for the relief of headaches which had become so severe that her nutrition and rest had been interfered with, causing a loss in weight of fifteen pounds in a few months. After her excessive eye fatigue was relieved, her headaches ceased, and soon she regained her weight by living a more normal life. Of course the glasses did not directly restore her lost weight; but they did give her repair mechanism an opportunity to work more successfully by materially reducing her eye fatigue.

Remote Causes of Eye Difficulties

In health it is frequently difficult to associate cause and effect because of the long interval of time, or because of unusual results which a cause may produce.

On awaking one morning about a month ago, Mr. Baker noticed that something was wrong with his eyes. On closer observation, he found that he saw double and that one eyelid drooped. In addition, the pupil of the drooping eye was somewhat larger. Neither pupil contracted in the light. He was apparently in the best of health and denied any past sickness which could have been causative. His family physician was requested to include a blood Wassermann test, and if necessary a spinal Wassermann test, in the examination. Besides the eye symptoms, nothing abnormal was found except a strongly positive Wassermann. His eyes have already markedly improved under appropriate syphilitic treatment. The double vision was really a blessing in disguise for, had it not occurred, his nervous system would have been so damaged by the disease before it was discovered that treatment could have been of little practical benefit. He finally recalled a very slight venereal sore some twenty years ago which lasted but a few days.

Some years ago Mrs. Austin had difficulty in reading and her glasses no longer seemed just right. Her pupils were a bit larger than usual and did not contract on light exposure. Her glasses were correct, and her symptoms were apparently due to medicine in some form. She promptly denied having taken medicine of any sort within six months. Her family physician found no evidence of disease in any part of the body. After repeated questioning, she finally thought of the suppositories she was using for piles. Ten days after other suppositories without belladonna were substituted, the eyes returned to normal and have remained so. Had even a slight glaucoma existed, this story would probably have had a different ending—blindness.

My residence phone rang early one Sunday morning, about five years ago, when the dismal voice of an old friend announced that he had suddenly gone blind in one eye. This he attributed to the baneful effect of bad whisky consumed the night before. Instead of wood alcohol poisoning, he only had a cinder imbedded in the eye, the removal of which promptly restored his sight and happiness.

General Diseases and the Eye

Disease in almost every organ of the body may affect the eyes. Approximately fifty conditions involving every part of the visual

system are caused by, or associated with, disease in some other part of the body. These may vary from the mildest and most transient symptoms, such as a slightly excessive fatigue of the eyes after close use to total blindness which sometimes occurs in locomotor ataxia. The ocular involvement may be rapid and violent, as in acute glaucoma, or may be so slow and gradual that one does not realize its existence until blindness or even death is near.

Some years ago, Mrs. Dardenne, a charming lady of about thirty-five, who had been very active in social and philanthropic life in a large city, had for several months been having occasional eye discomfort when reading, to which she gave little thought. She did not need glasses. The retinas of her eyes contained numerous hemorrhages, and the optic nerve entrance to the eyes had been swollen for some time. She died of uremia, a complication of long-standing Bright's disease, in about three months. Had she given more thought to herself and less to the rest of the world, her life would probably have been prolonged many years. The price of leadership is often high!

Focal Infection and the Eyes

The eyes may be involved by the direct extension of an adjoining inflamed tissue such as the sinuses, or they may be attacked from some distant part without involving the tissues directly surrounding the eyes.

Little Jane Marlow had a cold in the head for several months when suddenly her left eye became painful and so swollen that one could hardly have recognized her, not only because of the swelling, but because of the loss in weight associated with her high fever and loss of appetite. The infection had extended from her nose into the ethmoid sinus and broken down its paper-like separation from the orbit containing the eye. Drainage of the pus both through the skin of the lids and from the nose, quickly reduced the source of poisoning, and nature did the rest! Generally speaking, nature is kind to the young, cruel to the old. When a head cold lasts longer than normal, better find out what is going on.

When some parts of the eye are badly poisoned, recovery becomes more difficult and even impossible, though the cause is removed. No organ of the body contains in so small a space so many different kinds of highly specialized tissue as does the eye,

which is probably responsible for its sensitiveness to poisons and its peculiarities in recovering from disease or injury.

Old Mr. Brownlow was sent to me several years ago by his dentist because of slightly failing sight in both eyes. He was nearly eighty years of age and had a slowly developing uveitis, a poisoning of the eye, from elsewhere in the body. He had enough diseased teeth to poison a dozen eyes, which however were giving him no trouble and which had not affected his health for these many years. His eye disease was so slowly progressive that his sight, from a practical standpoint, would not have been affected for at least several years. His physician said he would probably not have more than two or three years in this world. The extraction of his teeth would have materially shortened his few years through shock and malnutrition, so the dentist and I both agreed that the human and scientific thing to do was to let Mr. Brownlow keep his few years, his teeth, and his eyesight for the probable length of his life.

How Focal Infection Works

This jumping of disease from one place to another in the body is in one form called focal infection; it is due either to a chemical poisoning in the eye from elsewhere in the body, or to the deposit of germs in the eye from some other part through the blood or lymph stream.

The journey of these germs is interesting. Let us suppose that bacteria—frequently streptococci—are buried at the root of a dead tooth. Further, let us suppose that mechanically, as in chewing, or chemically, by dissolving the delicate barrier which has previously separated the rest of the body from these germs, they get into the lymph or clear fluid from which every cell in the body gets its nourishment. Our germs are carried in the very sluggish lymph stream, probably multiplying all the time, unless killed by the white blood cells. In the nearest lymph gland, which is the second fortress of defense, they are usually killed and the story ends. Sometimes these germs storm the fort and pass to the nearest blood stream, and then to the heart. Here they not infrequently find a resting place and, continuing to multiply, produce some types of heart disease. Passing through the heart, they enter the arterial circulation and are deposited in the eye or elsewhere, causing secondary foci of disease. Their tortuous journey

to make us sick is one of our greatest safeguards to health. Just why the eye is so much more frequently involved than its relative size suggests, is not known. Its highly specialized tissues probably increase the liability to structural variations, which sensitize the eye not only to chemical poisons but to bacterial invasions. The infrequent involvement of both eyes in some forms of bodily infections is probably likewise explained.

Various Types of Focal Infection

We have always believed that a dog cannot be changed into a cat, nor a lamb into a lion, but Rosenow and other investigators have shown that some kinds of germs may be changed into other kinds and, still more interesting, that the eye is especially liable to be attacked by some germs injected in the blood stream. Although these ideas have not been generally accepted, they show that many of our unproven conceptions about disease will have to be revised. Friendly germs which are scavengers and live only on dead cells may under some conditions become deadly parasites which attack or poison living cells, and quickly overwhelm our defensive mechanism.

There is an interesting and varied group of ocular inflammations called herpetiform. They apparently can be produced by numerous causes, one of which is focal infections. The sensory nerves of the eye which contain nutritional or trophic fibers are primarily attacked by the germ, virus or poison, and as a result the affected part is insensitive to touch and heals very slowly.

Some parts of the body are especially fertile fields for focal infections. The germs which grow there seem to be especially virulent in causing disease elsewhere in the body, including the eye. The teeth, paranasal sinuses, faucial and pharyngeal tonsils, appendix, gall bladder, male and female generative organs, and probably the intestinal tract, are the principal storehouses for these types of infections. They may exist for years, apparently doing no harm, and suddenly and without apparent cause, attack a distant part of the body. It is quite probable however that lowered resistance, associated with physical and mental living habits, or perhaps a very slight injury, sets off the explosion by breaking down nature's barriers to infection.

Focal infections of the eye very frequently follow closely a death in the family, a severe emotional shock, or a very disturbing mental factor which has severely interfered with the well-being of the body. This association, which can be explained on sound medical reasoning, is probably more than mere coincidence. Of course, these factors are not the sole cause, but they make germs or poisons active which might have remained inactive a long time, perhaps indefinitely. Times of great stress and strain are dangerous times in health. Physical and mental living habits should especially be designed to reduce to a minimum the tax on body, mind and soul.

Eye Complications of Focal Infections as Old as History

From the publicity and interest shown in this subject during the past several years, it is not difficult to get the impression that the close relationship between the diseases of the eye and other parts of the body is just another new fad which will soon be forgotten. In reality, our fundamental ideas on this subject are the accumulation of approximately 4,500 years of observation. The first known reference to the association between diseased eyes and teeth, for example, dates back to the table of Hammurabi some 2500 B.C. The great Greek physician, Hippocrates, understood that disease in one part of the body might produce disease elsewhere. About 1800, Benjamin Rush, founder of the Rush Medical College, now a part of the University of Chicago, urged the removal of infected teeth to relieve disease elsewhere in the body. Since the development of the X-ray and of bacteriologic technique, about 1885, our knowledge on this subject has been greatly clarified, and the details of bacterial infection and the diseases produced are now reasonably well understood.

Good Health is Eye Safeguard

Life is a series of risks, adjustments and compromises. The physician's mission as a health counsellor is to avoid bad risks, make good compromises, and establish happy adjustments. Getting well is one of life's most thrilling adventures. Possibly getting sick is too, but most of us prefer other kinds of thrills. It has been said that we never miss the sunshine until the shadows fall, and often

we don't think of health until beyond recall. Many patients cannot realize that their symptoms are the result of an accumulation of health insults, usually over a period of years.

The complexity of modern medicine often increases the physician's difficulty in keeping before him simple practical fundamentals and avoiding scientific technicalities which may even confuse the basic and vital problem of getting well as quickly, simply, completely, and pleasantly as possible. Strange as it may seem, it is sometimes very difficult to avoid making the cure worse than the disease.

It has been said, and not without reason, that as we gain in education, we lose in intelligence, or the ability to think for ourselves. Although awful crimes and ridiculous mistakes have been committed in the name of health, the only remedy is more education and greater intelligence in the development and care of life's most wonderful machine, the human body.

Community Enterprise in Preventing Blindness

C. Edith Kerby

FOR the many communities and volunteer groups who seek to assume a more active part in sight conservation, this outline may suggest special, needed projects

THERE is no more satisfying human experience than the realization that one has made some contribution to the welfare of the community of which one is a part. Many important advances in civilization have been brought about through the stimulation of this service motive. In particular it has served well organized movements such as prevention of blindness. The National Society for the Prevention of Blindness looks to the active co-operation of people in all sections of the country, representing all groups in society, for only in this way can its influence be made to reach those who are most in need of advice or service and those who are in a position to see that needed facilities are provided. This Society takes particular pride in the number and variety of groups that have been enlisted for prevention of blindness activities.

Among the volunteers whose contribution is highly valued are the community clubs having a strong sense of civic responsibility. Frequently requests come to us from such organizations wishing to become acquainted with activities for the conservation of vision and the prevention of blindness and to improve eye health programs in their own communities.

Some of the outstanding efforts of community groups merit special mention. The circulation of an outline on conservation of vision, prepared from the Society's material, through the channels of the National Council of Jewish Women has been most inspira-

tional. The Lions Clubs in many sections of the country make it one of their functions not only to provide eye care and glasses for children in need, but also to promote education of the general public in prevention of blindness. The Summer Round-Up of the National Congress of Parents and Teachers has made a large part of the nation conscious that eye health begins in early childhood, and that vision testing of the child who has not yet learned his letters is a practical possibility. The League of Women Voters, the International Federation of Catholic Alumnae, local child study groups, women's clubs, posts of the American Legion, and civic improvement groups, have sought from the National Society for the Prevention of Blindness information on various phases of prevention of blindness and where and how that information might be put to practical use in the community.

Of special interest in these days of non-competitive "made-work" projects are the many conservation of vision programs being put into effect in various parts of the country by government agencies. Under the auspices of the Federal Emergency Relief Administration, activities and programs for eye health and sight conservation of young children have been put into effect in several states. The Civil Works Administration has made eye health in industry a part of its re-employment and re-education plan. Throughout Civil Conservation Corps camps, eye health education has taken the form of lectures, showing of the Society's film, "Preventing Blindness and Saving Sight," and distribution of pamphlets. Special projects to conserve vision may be carried on in other localities with similar co-operation and with similar benefits to the participants and to the community at large.

In presenting a survey outline for the use of these volunteer groups, it is the intention of the National Society for the Prevention of Blindness:

(a) To present the essentials of a well-rounded program, together with some definite suggestions as to the means by which desired ends may be achieved;

(b) To give the community a measuring rod by which to check the extent and effectiveness of work already under way;

(c) To stimulate the interest and active co-operation of volunteer groups in the community program.

The value of such a survey lies not in any presentation of its findings as such, but in the activities which grow out of it. The purpose of the outline will be achieved if, upon completion of its survey, an organization has found at least one phase of the program in which it is willing to participate. In general, our advice to club leaders is that they use the guide to find out what is already being done in their communities and then select from among the needed services some project suited to the interests and abilities of members.

Outline of Prevention of Blindness Activities

A. Prevention of congenital eye defects due to venereal diseases

It is desirable that every pregnant woman have laboratory examinations to detect the presence of gonorrhea or syphilis in order that the infected mother may be brought under treatment and her baby saved from blindness or serious eye defect (or other handicaps) which are due to venereal disease.

Are laboratory tests for gonorrhea and syphilis advocated in prenatal literature distributed by: the state health department? ..... the local health department? .... others? .....

Is this examination procedure practiced routinely in local hospitals and clinics having prenatal and obstetrical departments?.....

B. Prevention of babies' sore eyes (ophthalmia neonatorum)

Immediately after birth prophylactic drops should be put into the baby's eyes to prevent a serious eye infection.

Is this procedure advocated in infant care literature distributed by: the state health department? ..... local health department? ..... others? .....

If your state has a school for the blind, find out the number of new admissions in the last school year. ..... In how many of these new admissions was blindness due to babies' sore eyes? ..... How many of them were born in your community? .....

Does your state have a law (or a health department regulation having the force of law) requiring the use of a prophy-

lactic in the eyes of the newborn? ..... Is it required for all live births? ..... If not, what are the exceptions? .....

If midwives are permitted to practice in your state, does the health department take responsibility for their training? ..... supervision? ....

Are free prophylactics distributed by: the state health department? ..... the local health department? .....

In cases in which infection of a baby's eyes occurs, it is essential that the infant have *immediate* medical care (preferably by an ophthalmologist) if blindness or serious impairment of vision is to be averted.

To whom should suspected cases be reported in your community? ..... Is such person authorized to secure treatment for the patient? ..... What is the procedure? ..... Would the same procedure be applicable to cases of secondary infection or similar infections occurring in older age groups? ....

C. Care of the eyes during preschool age

Strabismus (also called squint or cross-eye) is a defect occurring in early childhood. If treatment is not begun before school age, the child may lose all useful vision in the squinting eye and may develop personality difficulties as well.

Have the facts about strabismus been presented to parents in your community during the past year by: radio? ..... lecture? ..... newspapers? ..... special pamphlet or letter from the health department? .....

Is there a squint clinic for indigent cases attached to some local hospital or health center? .....

The vision of a young child has an important bearing upon his physical and mental development. Vision tests may be given to children as young as three years.

Are vision tests made a part of the health examination of preschool children: in health centers? ..... in summer round-ups of children entering school for the first time? .... in kindergartens? .....

D. Care of eyes during school age

Vision testing and eye inspection to detect children needing ophthalmological examination should be part of the health examination of all school children.

Are all schools provided with artificially lighted charts for vision testing? ..... How frequently are routine vision tests made in the schools? ..... and by whom? .....

Do the schools keep a record of the eye condition of each child referred for ophthalmological examination? ..... Does the record include the ophthalmologist's findings and his recommendations as to treatment, re-examinations, and adjustment of eye work in the classroom? ..... Is the record continuous throughout the child's school life? ..... Is it made available to each of the child's teachers? .....

Is there a regular follow-up procedure to secure correction of vision defects or treatment for eye diseases? .....

Are there adequate community facilities for the care of the indigent child requiring: clinic examination? ..... hospitalization or treatment? ..... free or part-pay glasses? .....

Classroom environment and methods are important factors in the eye health and conservation of vision of the pupils.

Has your school department set up any regulations on school lighting? ..... What are the requirements? .... How do they compare with accepted national standards? ..... (See *Standards of School Lighting*, published by American Standards Association.)

Has any school had a recent check-up of classroom equipment and methods from the point of view of eye care?* ....

Children who are not blind but whose vision is so poor as to make the use of ordinary textbooks, etc., difficult or unsafe should be educated in special sight-saving classes having a specially trained teacher and using special equipment and methods.

* An Appraisal Form, setting forth the essentials of schoolroom environment recommended for the conservation of vision of school children, is included in the Society's publication No. 143, "A Program of Eye Health in a School System." The publication is available without charge upon request.

Are there any sight-saving classes in your community? ..... What is the total number of pupils in sight-saving classes? ..... Estimating that one child out of 500 will need sight-saving class training, approximately how many pupils in your community should be in sight-saving classes? .....

Does your state make special financial provision for sight-saving classes? ..... What is the amount? ..... How may your school board get authority and help in establishing sight-saving classes? .....

If your community has not enough children for a sight-saving class, what special provision is made for the child who needs this attention? .....

Community health and education facilities should be available to all children irrespective of race, religion, etc.

If there are groups of children whose schools are under separate management, (such as private, parochial, and Negro schools) do they have the same facilities as other children in all items noted above? .....

E. Prevention of eye accidents

It is a community responsibility to see that no child or adult suffers blindness or permanent eye injury from preventable accidents. Safety education and safety regulations are the most important means of preventing such accidents.

Is any responsibility for safety education assumed by: school department? ..... health department? .... labor department? ..... other official or lay groups in your community? .....

Does your state or local community have laws or ordinances prohibiting the possession or use by minors of: fireworks? ..... air rifles, slingshots or other toy weapons? .....

By what means are the eye hazards to children brought to the attention of parents? .....

Does your state have any industrial safety code or regulations in which the use of goggles is required for certain occupations? ..... what occupations? .....

Among the large industries in your community, which ones: have safety departments? ..... provide for eye examinations prior to employment? .....provide for periodic re-examination during employment? .....

F. Education of the public on eye care

The responsibility for the care of his own eyes rests primarily with the individual who should be taught the importance of good eye habits and periodic examination.

Is this phase of public education being handled by some other group in your community? ..... Can you arrange to supplement this by the use of: lectures? ..... films? ..... posters? ..... leaflets? ..... radio? ..... local papers? .....

Periods of severe illness (especially the childhood diseases—measles, scarlet fever, etc.) sometimes result in permanent impairment of the eyes. This need not occur if the eyes are watched and cared for during illness and their use in close work restricted during convalescence.

Do health department bulletins on communicable diseases give information on eye care? ..... Are these instructions presented to your community: by lectures? ..... by radio? ..... by local papers? ..... by leaflets? ..... Do teachers make adjustments in eye work for children returning to school after serious illness? .....

G. Facilities for eye care

Facilities for eye examination and treatment should be available to all groups.

Does your community have the following: Ophthalmologists (physicians specializing in eye care)? ..... Eye departments in some or all of the hospitals? ..... Eye clinics? .....

If eye service is not available in your own community, do you have occasional eye clinics conducted by ophthalmologists from outside? ..... Do school or other authorities

assume any responsibility for sending cases for treatment elsewhere? .....

No person having a vision handicap should be placed in an institution for the blind, workshop, etc., until the cause and extent of his defect have been determined by a complete ophthalmological examination.

Do all organizations caring for the blind in your community require ophthalmological reports? ..... Do such organizations make provision for surgical or medical treatment for persons whose sight can be restored or improved?.....

.....

Is trachoma a problem in your community? .....

If so, what special provisions are made to give examination and treatment for this disease? .....

Many eye clinics have the services of medical social workers with special training in eye work to assist the ophthalmologist in interpreting treatment to the patient and to make necessary social adjustments to keep under treatment the patient with an eye condition which may lead to blindness.

Do your eye clinics have medical social eye workers? ..... If not, can the hospitals be helped or influenced to obtain such service? .....

H. Organized work for conservation of vision and prevention of blindness

As in other fields of activity, the best results are obtained through co-operation and experienced leadership.

Is there any organized society or committee responsible for conservation of vision and prevention of blindness activities in your community? ..... Have its officers any public authority? ..... Are the workers paid or volunteer? ..... Does at least one worker have special training in eye work? .....

Are the following individuals contributing to the program: health officer? ..... school superintendent? ..... ophthalmologists? .....

Are local clubs or other volunteer groups co-ordinating their activities instead of working independently? .....

Community Opportunities for Improvements in Local Programs

Methods which may be used by community organizations to bring about improvements in local programs are:

Stimulation of public opinion to bring about desired action such as legislation or appropriations

Demonstration projects to prove the value of certain types of work

Volunteer service in activities organized by official and semi-official groups

Financial contributions to organized activities

Education of the public by lectures, radio, etc.

Investigation of practices and facilities

Specific information on work already under way and advice in planning new activities may be had from:

State societies for prevention of blindness
State commissions for the blind
State and local boards of health
State and local boards of education
Medical societies
Public health nurses
Local hospitals and clinics
Welfare agencies

Editorials

Annual Meeting and Conference

WHEN, in 1908, five determined people met and formed the nucleus of what later became the National Society for the Prevention of Blindness, they were inspired by the plight of little children, needlessly blind. That they did not work in vain, that the goal which they sought was realizable, that their dream of preventing blindness has grown to extend beyond one group to make itself felt in nearly every walk of life—these realities were strikingly seen at the annual meeting and conference of the Society held December 6, 7, and 8, in New York City.

Sounding the keynote of the conference was the address at the annual meeting of Dr. Edward Jackson, who talked on "The Broad Basis for the Prevention of Blindness."* More than 250 members and friends of the Society demonstrated by their presence their interest and participation in the activities of the Society. Following the Society's endeavor to take a part in helping any agency of society in whatever responsibility it may have for the conservation of vision, the conference sessions covered wide fields of investigation. "Contribution of Statistics to the Prevention of Blindness," a round-table discussion in co-operation with the American Foundation for the Blind, presented the work and the future possibilities of the Committee on Statistics of the Blind, from the angle of the statistician, the ophthalmologist, the organization for the blind, and the worker for prevention of blindness. A luncheon session—"Eliminating Fireworks Accidents"—outlined significant recent developments which offer substantial hope for the elimination of fireworks accidents, and presented a plan for more effective control of the use of fireworks than has heretofore been possible. At the session on "Prenatal and Congenital Infection in Relation to Blindness and Impaired Vision" in co-operation with the American Social Hygiene Association, a syphilologist, an ophthalmologist, and a public health official presented various

* Published in this issue of the REVIEW, p. 243.

aspects of the subject. Of particular interest to sight-saving class teachers was the round-table for supervisors, teachers and others directly or indirectly connected with sight-saving class work which was devoted to informal discussion of the special problems in this field of education.

Not only were the papers at the conference of first importance, but the responsiveness of the audiences—physicians, educators, social workers, nurses, safety engineers, leaders in social activities and students—led to stimulating discussion of the papers and the presentation of many points of view. The editors of the REVIEW are happy to announce that the coming issue will be devoted exclusively to papers and abstracts of the discussion presented during the three-day conference.

William Campbell Posey: 1866–1934

The sudden death of William Campbell Posey on September 5, aboard the S.S. Rex in the Bay of Naples, came as a sad shock to his many friends and co-workers. A Philadelphian by birth, Dr. Posey helped to make the world conscious of the possibilities and the need of conservation of vision. Space does not permit publication of the many tributes to the memory of Dr. Posey which the National Society has received, and must be limited to the following quotations from two who were closely associated with him, first, as an ophthalmologist, and, second, as a force in the movement for prevention of blindness. Dr. Samuel Horton Brown, a colleague formerly associated with Dr. Posey in Philadelphia, said of him: "Here in Pennsylvania Dr. Posey was responsible for the first Committee on Conservation of Vision of the Medical Society of the State of Pennsylvania. Almost single-handed, without any financial budget from the medical society, he effected legislation regarding ophthalmia neonatorum and trachoma, as well as the follow-up work on the educational aspect. His capacity for work of this type was unlimited. . . . Under the inspiration of this indefatigable genius, the Committee on Conservation of Vision of the Medical Society of the State of Pennsylvania was revived in 1933 and a state-wide program utilizing subsidiary county medical societies was inaugurated. . . . His untimely death deprives this project of the impelling force so essential to such enterprises,

but his inspiration still survives and the continuation of this work by his loyal associates will be a permanent tribute to his memory."

In honoring Dr. Posey as a member of the National Society for the Prevention of Blindness, Dr. Park Lewis, vice-president, said: "Dr. Posey was one of the most understanding of the medical men who had associated themselves with this great humanitarian movement from the beginning. He was always the scientific ophthalmologist, but he had as well the imagination necessary to realize the needs of those who knew little of eyes and their care. He made himself, therefore, an invaluable liaison officer between formal medicine and the public. He stimulated the members of the American Medical Association, of the American Ophthalmological Society, and of the American Academy of Ophthalmology and Otolaryngology to sponsor preventive measures as no other member of these organizations could have done. He activated the health boards, and he brought to our discussion seasoned judgment which could always be depended upon."

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

Preventing Blindness Throughout the World*

Colonel Robert Ingersoll once remarked rather irreverently that if he had been God, he would have made health catching instead of disease. As a matter of fact, constructive, health-producing ideas are more readily carried from one person to another than destructive, disease-producing ones. If this were not true, we could not have practically wiped out smallpox, yellow fever, diphtheria, typhoid fever and a host of other diseases that are rapidly diminishing in number and in deadliness.

This is especially true of that most dreaded affliction, blindness. To many persons the thought that the loss of sight when it occurs is not always inevitable will occasion surprise. Are not doctors, hospitals and clinics, you ask, doing all that can be done to save our eyes? Surely, they are doing all they can and the splendid scientific advances for the restoration of sight to eyes already blinded are among the triumphs in modern science and surgery. Yet the fact remains that there are approximately 100,000 blind people in the United States, and that at least one-third of these need not have lost their sight, if the right thing had been done at the right time and in the right way. Of the two or three million blind people in the world probably half might still be seeing if the early conditions had been known and cared for before changes occurred for which no remedial measures are possible.

I welcome the opportunity to tell you briefly today what has been accomplished in preventing blindness in this country and throughout the world, what is hoped for in the development of this movement in

* Radio Talk, Station WEAF, over Red Network, National Broadcasting Company, September 27, 1934, at 3.30 P. M.

the future, and how women can be of the greatest help in making this work effective.

We should realize that all blindness may be roughly classified in two groups: that which is inevitable and that which could have been prevented. Many from the first group are rapidly passing into the second. It used often to be assumed that accidents by which eyes were lost were unavoidable, but this is not always true. By the use of protective devices a large group of injuries including many burns, scalds and explosions that were once of common occurrence have been made relatively infrequent and numbers of eyes have been saved in consequence. Children are examined now in our schools and defects that were formerly overlooked are now discovered and corrected.

Twenty-five years ago the largest single cause of blindness in children was an infection which found entrance into the eyes of infants at birth. This came from the secretions of the infected mother. The inflammation which this produced was so severe that in many eyes the sight was lost.

Karl Crédé, a distinguished European obstetrician, conceived a happy idea. This infection did not occur very often, only in one out of every eight or ten births, but an occasional blind child here and another there made a fearful aggregate. "Why not," said he, "put a drop of a certain harmless germicide in the eyes of every newborn child whether an infection is present or not? If the infection is there, it will be destroyed, and if there is no infection, it will do no harm." He tried this method in his own clinic and in the first 250 births there was not a single infected eye.

One would think that this would have stopped birth infections of the eyes throughout the world, but it took thirty years and the combined efforts of the 80,000 doctors of the American Medical Association, of all the health boards and of the National Society for the Prevention of Blindness to make this simple procedure a routine measure in the care of all newborn infants.

It took several years before the effects of this concerted movement became apparent. Then the number of young children entering the schools for the blind began to grow fewer. From 26 per cent the numbers dropped to 20 per cent, then to 18 per cent, then to 14 per cent, to 12, and it has now reached 7 per cent, a reduction of about 75 per cent in thirty years. Seventy-five per cent seems a tremendous reduction but thirty years is much too long to take for it. The other 25 per cent is equally preventable and should be entirely abolished without loss of time.

I have been talking about an infection that occurs after the child is born, and is called ophthalmia neonatorum.

There is a far more serious infec-

tion that reaches the developing child before it is born. It causes not only blindness, but often deafness and physical and mental deformities that last through life. And it is much more terrible because it does not show itself until the child is five or six years old or even older. It is the cause of more profound and varied manifestations of disease than almost any other single cause. How serious and how widespread this one cause is will be realized when I say that at least two per cent of all the children in the whole of the United States were infected in this way by their mothers before they were born. In the clinics, this infection is found in anywhere between eight and thirty per cent of the pregnant women.

The unborn child is infected in the early months of pregnancy. But a fortunate and happy feature of this condition is that, if it is discovered early and the mother is adequately treated, the child will almost surely be free from disease. We find again a condition almost parallel to that of the infections that occur after the birth of the child. The presence of infection in these prenatal cases can be found by a blood test and state laboratories will make this without cost. These tests should be a routine in the case of every woman at the beginning of her pregnancy. If the woman is free from infection no harm is done, but if the infecting organism is in her system it gives an opportunity for its treatment and the protection of both mother and child. Indeed, a medical certificate showing freedom from serious infectious disease should be an invariable prerequisite for both the man and the woman before the issuance of a marriage license. Then all who need medical treatment to prevent the frightful calamities which might come to their children may have it provided for them.

Women's organizations can be of immense aid in this movement. You, who are prominent in any organization, let your members know these facts. Will you not ask a doctor or a health official in your community to tell your group what you must do to protect yourselves and your unborn children from a menace that may cause them to be blind?

I have said little about the world movement because that which is being carried out in America is typical of that which is rapidly being developed throughout the world. Medicine and science have no boundaries. And so close are our means of communication today, so interdependent are nations one on the other, that what happens in India, or China, or Russia, or Japan today influences the life and activities of those of us in the United States.

In 1929, at the close of the Ophthalmological Congress held in Amsterdam, the International Association for Prevention of Blindness was organized and the International

League for the Control of Trachoma was founded.

Trachoma, or granulated eyelids, is one of the great plagues of parts of Europe and of the Orient. We have relatively little of it here.

The president of the International Association for Prevention of Blindness is Professor de Lapersonne, one of the greatest of the French ophthalmologists, and the president of the International League for the Control of Trachoma is Professor de Grosz, a Hungarian of equal eminence. At the last meeting of these two great organizations, founded five years ago, twenty-six nations were represented. They are in close accord with our own National Society for the Prevention of Blindness, and hope to attain in their countries the advances already achieved in the United States.

PARK LEWIS, M.D.
Vice-President, National Society for the Prevention of Blindness

Leisure Time Activities for Sight-Saving Class Pupils

In approaching the question of the use of leisure time by pupils in sight-saving classes, it must be borne in mind that among these children there will be found quite as wide a variety of personalities, abilities, traits and aptitudes as will be found in any other group. Hence an attempt to lay down specific activities for the group as a whole would be predestined to failure.

Modern education stresses accentuating the strength of the child through a knowledge of his own desires. It would, therefore, seem that the first requisite for suggesting leisure time activities is to find out what those desires are. This is much more possible in sight-saving classes than in regular grades: first, because the groups are so much smaller that there is greater opportunity of working and playing with the individual; and, second, because such children remain, for the most part, much longer with one teacher. Hence, even baffling personalities have just that much longer to evince their peculiarities.

The teacher herself must be particularly resourceful. She must have not only a variety of suggestions to make, but she must be cognizant of the mental, the physical and the social possibilities of her pupils if she is going to be able to help them in any sense to choose wisely. Thus she must know whether the family belongs in a reading group, in an intensely pleasure-seeking group, or, perhaps, in the group that is haphazard in its use of leisure time because of its inability to meet economic conditions.

In the reading group the temptations for the sight-saving class child to do close eye work at home are great because of example and

propinquity. For all children, but particularly for this group, the teacher of the sight-saving class will emphasize the art of listening—the use of ears instead of the use of eyes—carrying still further the suggestion of the White House Conference that the remaining strength is of greater importance than the special weakness. A child who has learned to listen understandingly will not only develop power of concentration for his school work, but will open up for himself an almost endless vista of leisure time activities—listening to music, to the radio, to the talking book or to reading aloud by some member of the family.

Outdoor recreations should be accentuated for leisure time, and one of the finest mediums through which to interest the sight-saving class child is the Boy or Girl Scout troop—not special troops of sight-saving class children, but regular troops in which the partially seeing child may take an active part. The new *Girl Scout Handbook* now reproduced in large type will aid greatly to make participation in these groups possible.

In such districts as they are practical, flower or vegetable gardens are a source of almost endless pleasure and interest.

In foreign countries the visitor notices especially that children sing and dance much more than in America. Is there any reason why sight-saving class children should not take part in folk dances and community singing as a part of their leisure time activities? A small amount of orchestral work is made possible either by teaching the music through ear, or by translating the notes into numbers prepared in large type.

The possibility of grinding special lenses from non-shatterable glass should obviate many of the difficulties arising from the possibility of accident in play. There are, of course, numerous games in which some partially seeing children cannot participate because they cannot see the objects used in these games, such as balls. But there are a host of other games in which they may take part. Directors of playgrounds, if they understand the possibilities as well as the limitations of the partially seeing child, will be able to help in increasing the number of games in which they may take part.

Carefully guided gymnasium activities offer other leisure time opportunities. Since all children in sight-saving classes are considered individually, there will be found some who can undertake practically all the usual gymnasium work as it is offered by Y.W.C.A.'s, Y.M.-C.A.'s, Y.W.H.A.'s, Y.M.H.A.'s and settlement groups.

Ophthalmologists are throwing new light on what may be accomplished for children with some eye conditions in which the eye needs education, such as cross-eyes. The

principle underlying this training is to give the eye something so interesting to see that it will make the necessary effort. Many games may be used under the direction of the ophthalmologist and, as a late development, an occasional motion picture. The film of the Three Little Pigs has encouraged many a lazy eye to work. Surely this is a new and welcome attitude to many who have heretofore felt that moving pictures should be forbidden to all children who have any eye difficulties.

There are long evenings at home when other members of the family are reading or writing. Is there any reason why the child who has an aptitude for the making of stories should not write his original version on the typewriter if one is available? Typewriting well taught in the sight-saving class will make this leisure time activity pleasurable and profitable.

There are always eager hands that are trying to find something to do. Here is a girl who has an artistic sense of color and costume. Instead of being tempted to sew, why can she not make and dress, with paper and paste, model dolls, arraying them in the newest styles?

The little epicure who has learned to concoct luscious cookies in the domestic science class will get real joy out of making a batch of these palatable dainties for the family.

How about fingers that are positively itching to mold pliable materials, clay, plasticene, etc., into something worth while? Will it not be possible at some time to have a kiln where pottery may be baked and the results of these leisure time activities be made to take more permanent form? How about giving other fingers a hammer and some odd bits of lumber to be transformed into a bird house or a bench?

The modern school is the place to encourage creative activities and so to train all children that they may find expression in those things for which they are normally suited.

WINIFRED HATHAWAY
Associate Director, National Society
for the Prevention of Blindness

Note and Comment

Lighting Course for British Health Officers.—Now included in the curriculum of the London School of Hygiene and Tropical Medicine is a course in lighting practice. A lighting demonstration room has been equipped with several methods of lighting, and is used to show post-graduate students the advantages resulting from good lighting and the bearing that light has upon both economics and health.

Increased Protection for Pennsylvania Children's Eyes.—Better care for the eyes of children is the mainspring of action of the Committee on Conservation of Vision of the Medical Society of the State of Pennsylvania. An effort is being made to see that all communities are acquainted with accredited ophthalmological services, both in private practice and in clinics or dispensaries. The development of local committees has greatly aided the spread of information on means of conserving sight; publications, slides and films on eye care have been effective weapons in the campaign for general eye hygiene education.

National Council of Jewish Women Outlines Prevention of Blindness Activities.—An undertaking of significance in the conservation of sight is the outline prepared and published by the National Council of Jewish Women on which local councils may base sight conservation activities. Its specific objectives are: "To study the sight conservation needs of the community and the existing facilities for meeting these needs. Learn what can be done in a community for sight conservation and then find out if, and to what extent, it is being done in your community. Co-operate with public authorities and other organized groups in the community, but do not attempt to undertake too much at one time." Education, organized effort and legislation are recommended methods of work. The National Society for the Prevention of Blindness was consulted, and co-operated in working out the plan.

New Publication for Work with Blind and Partially Sighted.—Of special interest to readers of the REVIEW is the first issue of *Archiv für das Blindenwesen und für die Bildungsarbeiten Sehschwachen*, a German journal devoting its pages to questions of work with the blind and the partially blind. Director S. Altmann, of Vienna, is its editor, and on its editorial board are such familiar names as Dr. E. E. Allen, Prof. M. Bartels, Mr. R. B. Irwin, Dr. M. Meissner, and Dr. J. Redslob. The editor solicits communications in this field in English, French and Italian, which may be sent to him at Hohe Warte 32, Wien XIX, Austria.

New Sight-Saving Classes.—Despite cuts in appropriations for education in many communities in the United States, 24 new sight-saving classes have been opened since the beginning of the school year in September. Among the cities making additional appropriations for sight-saving classes are: Louisville, Kentucky; Fall River, Massachusetts; Auburn, Buffalo, Dunkirk, Ithaca, Long Beach, New York, and Yonkers, New York; Dennison, Gallipolis, Hillsboro, Ironton, Newark, Portsmouth, and Steubenville, Ohio; Providence, Rhode Island; Los Angeles, California; Chicago, Villa Park, Joliet, Champaign, Freeport, and Elgin, Illinois; and Honolulu, Hawaii.

Ophthalmia Neonatorum Still a Problem in Prevention.—Although ophthalmia neonatorum was the first point of attack in the war on blindness, and is, in theory, completely conquerable, it still commands the earnest attention of physicians, social workers and public health authorities. The percentage of children entering institutions for the blind because of ophthalmia neonatorum has fallen from 27 per cent to less than seven, and we can safely say that three-quarters of ophthalmia neonatorum has been prevented, but we cannot neglect the most stubborn quarter of all—that last quarter—the children afflicted with a disease which we know to be preventable. From Ohio comes the report that 1,059 cases of ophthalmia neonatorum were reported during the year 1933, of which 21 were due to gonococcal infection. Prompt action on the part of the medical and nursing forces and thorough, constant care saved the sight of 20 of the 21 infants. What to do to prevent

ophthalmia neonatorum, and how and where to obtain the all-important care for those cases that develop are tersely outlined in a bulletin recently issued by the New York State Commission for the Blind to social agencies, physicians and nurses. In a five-year period in New York State, 19 babies completely lost vision, and 16 others have impaired vision because, somewhere along the line, someone did not take the needed step at the proper time.

An editorial comment in the September issue of the *American Journal of Public Health* says that the introduction of Crédé's technique was the first step; compulsory notification and treatment made the second advance in the reduction of blindness from this cause; better training of obstetrical attendants is apparently the next step to reduce further this disease which should be a medical and social rarity.

A recently reported study, made under the auspices of the Philadelphia Conservation of Vision Committee, with the co-operation of the Civil Works Administration, and sponsored by the Committee on Conservation of Vision of the Medical Society of the State of Pennsylvania, the Department of Health of Philadelphia and the Philadelphia Health League, demonstrates that application of silver nitrate alone is not sufficient protection in every case. Prenatal care and careful technique are important factors in complete prophylaxis.

However, an analysis of birth certificates in New York State, exclusive of New York City, made by the state Bureau of Vital Statistics, shows that even silver nitrate prophylaxis is far from being universally applied: 3.6 per cent of live births in hospitals, and 4 per cent of births where physicians officiated did not receive prophylactic drops. Little or no difference is seen in the percentage for white and colored babies, or in the percentage for those having native or foreign-born mothers, but when the attendant at the birth was neither a midwife nor a physician, the percentage of those not receiving protective drops rose abruptly. As is to be expected, in the illegitimate births twice as large a percentage of babies did not receive drops as in the legitimate births. When it is still possible for 458 babies born in New York State not to receive any protection against a disease that so often has dire results; when it is possible that in 331 instances physicians

did not take the precaution of which they cannot fail to be aware; the campaign against ophthalmia neonatorum needs to be continued on every front.

Washington Squint Clinic.—Estimating that two out of every hundred children have cross-eyes, Washington ophthalmologists have welcomed the establishment of a squint clinic at the Children's Hospital. Once the period of fusion development has passed (usually about six months of age), no child is too young to begin treatment for correction of cross-eyes. In the Washington clinic, an eight-months-old baby was recently fitted with frames; as soon as the frames became familiar, lenses were added, and the process of treatment and training was begun with every expectation of early correction.

Improved Lighting Is Reflected in Class Work.—Keeping classroom illumination at a constant, efficient level showed definite improvement on the part of pupils, according to an experiment made in the Mt. Lebanon (Pennsylvania) school. Two classrooms, alike in every respect but illumination control, and two groups of children whose mental and achievement levels were similar, furnished material for the experiment. Classroom "M" was lighted by four 100-watt globes. Classroom "A" was lighted by four 500-watt globes, and the switch was controlled by a photo-electric relay which turned on the supplementary illumination when daylight fell below 12 foot-candles and turned it off when the light measured 14 foot-candles or more. Since other factors were equal, it is assumed that the constant, adequate level of illumination was responsible for:

1. The pupils in room "A" showing approximately 28 per cent more improvement than the pupils in room "M."
2. The pupils in room "A" being more alert and responsive; there was no lack of enthusiasm because a day was dark and dreary. The group in room "M" reflected the weather.

The teachers, too, who had been skeptical of the experiment in the beginning, felt the benefits of the automatically lighted room.

Pittsburgh Seeks Reduction of Fireworks Accidents.—An ordinance has recently been passed in Pittsburgh regulating the sale of fireworks and making it unlawful to use, discharge, ignite or other-

wise set in action fireworks, firecrackers, sparklers, or other pyrotechnics by any person, firm, or corporation within the limits of the city. Special public displays of fireworks, by properly qualified persons, may be permitted upon application made thirty days in advance. The passage of this ordinance through the City Council and its repassage over the Mayor's veto is encouraging because it shows that men of responsibility are aware of the hazards of fireworks; unfortunately, it cannot protect those children whose parents are foolish enough to provide transportation to the outskirts of the city and money for the purchase of firecrackers and other explosives.

Prevention of Blindness in Brazil.—Because of the physical expanse of the country, and of the variety of health problems found there, the Brazilian Committee of the International Association for Prevention of Blindness has devoted its efforts to establishing local groups for active field work in the prevention of blindness. At the All-Brazilian Ophthalmological Congress to be held at São Paulo, January 19 to 25, 1935, a meeting of the local committees of the Brazilian National Society for the Prevention of Blindness has been called, at which steps in continuing and expanding the sight-saving program will be discussed. Plans have also been made for sight conservation exhibits at the Congress, as well as a showing of the film, "Preventing Blindness and Saving Sight," loaned by the United States National Society for the Prevention of Blindness.

Typical of the organization and program of the local committees for prevention of blindness in Brazil is the announcement of the Santa Luzia Foundation in Salvador, Bahia, Brazil. It aims to:

1. Maintain a service for the prevention of blindness, promoting the spread of general eye care.
2. Maintain an out-patient service for aiding and treating the poor who are threatened with blindness because of accident or disease.
3. Promote general knowledge of vision, of causes of blindness, and of means of sight conservation, in factories, schools, etc.
4. Persuade engineers and builders to observe all the technical rules for distribution of light, particularly in schools, factories,

offices, etc., and demonstrate to students and workers the necessity for immediate treatment of any eye trouble before complications and blindness set in.

5. Promote a constant and systematic campaign among physicians, nurses, druggists and others, so that all persons may avail themselves of the free services of the Foundation if they suffer eye disease or accident liable to endanger sight.

Causes and the Prevention of Blindness.—Analyzing the causes of blindness in a study of 460 cases, in the September 15 issue of the *Medical Officer* (England), Dr. Matthew Burn and Dr. Philip Jameson Evans find that half of the blindness might have been prevented had care been taken at the proper time. Syphilis was the cause of nearly 18 per cent of the blindness; ophthalmia neonatorum caused nearly 14 per cent; among the cases were 21 blind persons with uncomplicated senile cataract, who, after operation, may again see. Nineteen per cent of blindness comes under the heading of inheritable, stressing again the need to clarify the demands of eugenists for voluntary sterilization or birth control for those who carry the genes of hereditary blindness.

The comparative costs for nine large local authorities show that the amount of money expended per head per annum for blind persons runs from £20 to £43; the expenditure for the welfare of the blind in Birmingham has risen from £12,000 to £26,000 since 1929. The authors conclude: ". . . the expenditure of monies for the prevention of blindness on the lines indicated could only result in a substantial saving to the local authority concerned —a saving not monetary only, but a saving of life—and would also mean an eradication of those cases of blindness which are the cause of so much suffering and yet are preventable."

Sight Conservation Topics at State Meetings.—During the conference of the New York State Federation of Workers for the Blind, held in co-operation with the Central Association for the Blind of Utica, prevention of blindness was discussed at an evening meeting. Dr. T. H. Farrell spoke on "Prevention of Blindness Today"; "What Workers for the Blind Can Do to Aid in the Prevention of Blindness" was outlined by Lewis H. Carris, managing director of the National Society for the Prevention of Blindness.

An Eye Institute, arranged under the auspices of the New York State Commission for the Blind, bureau of prevention, with the co-operation of the Onondaga County Medical Society and the Syracuse Eye, Ear, Nose and Throat Club, was held for two days in Syracuse. Open to anyone interested in a better understanding of the eye, an opportunity was offered to learn about recent developments in the conservation of vision and the prevention of blindness, to participate in group discussion, and to meet fellow workers.

Vitamin A for Eyes.—Two sows, placed on diets adequate in every way but completely lacking in vitamin A, at the Experiment Station of the Texas Agricultural College, produced litters of eyeless pigs. This experiment confirms the work already done on rabbits and guinea pigs, and emphasizes the importance of a well balanced diet in a healthy environment for unborn young. In times when the dietary of so many persons is limited by lack of funds, the importance of providing all the necessary elements for life and development is again stressed.

Spreading Snare of Syphilis.—Jane, a twelve-year-old girl, was very fond of babies, as many little girls are, and when a new baby arrived next door, she was delighted that she might occasionally act as nurse. Even when the baby developed snuffles, Jane was helpful and tried to quiet his cries as she rocked him. Medical examination disclosed that the baby had congenital syphilis, and he was given all the care that the local clinic could extend.

A month later, the school nurse took Jane to an eye specialist for an eye condition that had recently developed. Not until a rash developed on the child's body was it discovered that Jane had contracted syphilis from the baby that she had so fondly tended. Had the mother been carefully examined during her pregnancy and treated, had all the family contacts been followed after it was discovered that the baby was afflicted, extensive treatments and possible future complications could have been avoided.

Lighting of English Factories.—Glare and general unsuitability of lighting systems, rather than inadequacy of illumination, are the principal faults of lighting systems in the large factories around Sheffield in England, according to the report of the chief inspector

of factories. Out of 425 factories visited, only 27 were found to possess up-to-date installations for illumination. When recommendations were made, conditions were improved in 128 plants; in 17 others plans are now being made to bring the lighting system up-to-date.

More Wrestlers' Trachoma.—Coincident with the popularity of wrestling in all parts of the country, reports from ophthalmologists of wrestlers' trachoma are also increasing. Two more cases are reported by Dr. William Zentmayer in a recent issue of the *Archives of Ophthalmology*. Because professional wrestlers are often moving from one city to another, treatment is sporadic; the results of serious impairment or complete loss of vision should impress upon health authorities and state boxing commissions the importance of making every attempt to reduce the prevalence of the disease among wrestlers.

National Society Notes.—Co-operating with the National Girl Scouts, Inc., the Society has helped to prepare and publish a Girl Scout handbook in large type. The book contains a general introduction to Girl Scouting, the Tenderfoot and the Second Class Scout; the material is presented in most attractive form, reproducing many illustrations, in large and simplified form, which appear in the regular *Girl Scout Handbook*. It is expected that the large type *Handbook* will effectively supplement the constructive use of leisure among partially seeing girls. The new publication was released in time for the National Convention of the Girl Scouts, Inc., in Boston, when Mrs. Winifred Hathaway, associate director of the Society, talked on "The Partially Seeing Girl in the Scout Troop."

Staff members have continued to meet the requests for service and consultation from many parts of the country. Mr. Lewis H. Carris, managing director, addressed the Eastern Conference of Home Teachers of the Blind in Pennsylvania, at Overbrook, Pennsylvania; at the meeting of the Philadelphia County Medical Society, Mr. Carris presented, in his discussion of Dr. Louis Lehrfeld's paper on "Ophthalmia Neonatorum," the Society's policies in publicizing the prevention of that disease. He also

spoke before the western zone New York State Teachers Association's section meeting on atypical children, on "The Eye Health of the Atypical Child"; at the Eye Institute of the New York State Commission for the Blind, he presided at the luncheon on illumination; Mr. Carris also attended the meeting of the New York State Federation of Workers for the Blind, where he talked on "What Workers for the Blind Can Do to Aid in Prevention of Blindness."

The Society has taken advantage of exceptional broadcasting opportunity during the past few months: Dr. Park Lewis, vice-president, talked over a network of more than forty stations on the "International Movement for Prevention of Blindness"; Dr. William F. Snow, general director of the American Social Hygiene Association and member of the Board of Directors of the Society, spoke over Station WABC on "Conserving the Sight of School Children"; and Mr. Carris, on a nation-wide hook-up of the Columbia Broadcasting System, talked on "The War Against Blindness." Other staff members gave radio talks on eye health, under the auspices of the New York Tuberculosis and Health Association, on local stations.

Mrs. Hathaway, as an authority on the education of visually handicapped children, was invited by the United States Office of Education to contribute to the program on the education of exceptional children. At the invitation of the head of the department of education for exceptional children, Mrs. Hathaway lectured at a course on atypical children, on "The Education of the Partially Seeing."

Announcement is made of the marriage of Miss Eleanor P. Brown, associate director, to Mr. Frank H. Merrill, of New York. Mrs. Merrill will continue her association with the Society.

The promotion of eye health among preschool and school children has taken Miss Mary Emma Smith, R.N., director of nursing activities, to county seats in Maryland, to Atlanta, Georgia, and to the larger cities in Florida. Dr. Anette M. Phelan, staff associate, has visited Eastern Kentucky State College at Richmond, Kentucky; Indiana University at Bloomington; and the Mississippi State College for Women at Columbus, to integrate eye health in teacher training institutions.

Current Articles of Interest

First Aid for Eye Injuries, Margaret Schaefer, *American Federationist*, October, 1934, published monthly by the American Federation of Labor, Washington, D. C. Every year there occur among workers thousands of cases of eye infections because of delay in getting competent first aid for minor eye injuries. The writer advises prompt reporting to the first-aid station for the removal of particles. Any penetrating wound of the eyeball should have the attention of an eye physician. The loss of an eye can never be compensated in money, and the worker himself must take responsibility for the protection and care of his eyes.

A Classification of Cases of Concomitant Strabismus Based on the Etiological Factor, M. A. Pugh, *British Journal of Ophthalmology*, August, 1934, published monthly by the British Journal of Ophthalmology, Ltd., London, England. In an analysis of 500 cases of squint, the etiological factor was sought, and it was found that error of refraction accounts for 62 per cent of the cases; fusion defects, which may have been primarily refraction defects, account for 15 per cent; psychological causes account for 21 per cent. Physical defects cause the remaining 2 per cent of the assembled cases of squint. The comparatively large proportion of cases having a psychological basis is interesting not only to ophthalmologists but to those dealing with the emotional health of children. Jealousy, fear, and demand for attention were emotional factors which reacted in crossing of the eyes.

Effect on the Eye of Yellow Light of the Sodium Vapor Lamp, James E. Ives, *Public Health Reports*, August 10, 1934, published weekly by the United States Public Health Service, Washington, D. C. Because of the growing popularity of sodium vapor lamps, especially in highway illumination, a test was made by the United States Public Health Service to determine the effect of the use of this type of light upon the eyes. The report of the investigation shows that there is apparently no effect, either beneficial or detrimental, upon the eyes working under sodium vapor lamps; although the subjects working by this type of lighting said that they liked the light, finding it soft and easy on the eyes, no differ-

ence in the quality or quantity of work produced by the "sodium" or the "tungsten" groups could be discerned.

Trachoma in the Indians of Western Canada, J. J. Wall, M.D., *British Journal of Ophthalmology*, September, 1934, published monthly by the British Journal of Ophthalmology, Ltd., London, England. The author, who presented this paper at the general assembly of the International Association for Prevention of Blindness and the International League Against Trachoma, in Paris, believes that while trachoma is as communicable as smallpox, education to raise the living standards and the hygienic level among Indian families will do much to reduce the incidence of the disease. Climate and rainfall have a definite secondary effect upon the incidence and severity of the disease, but, in the final analysis, cleanliness of personal habits and a realization of the communicability of the disease will bring a real decrease.

The New Science of Seeing, M. Luckiesh and Frank E. Moss, *Transactions of the Illuminating Engineering Society*, September, 1934, published monthly by the Illuminating Engineering Society, New York, N. Y. A résumé of the many research studies made to perfect the "science of seeing" through improvement in lighting. The authors would class with the eye specialist, the physician, the health official and the social scientist, the illuminating specialist whose activities are primarily directed toward human welfare and the conservation of human resources.

Visual and Orthoptic Training, Joseph I. Pascal, M.D., *American Journal of Ophthalmology*, September, 1934, published monthly by the Ophthalmic Publishing Company, St. Louis, Mo. Sight involves more than light striking the retina; it involves as well the brain or mind necessary to interpret into vision the light-image on the retina. The child with concomitant strabismus must learn to perceive the image which he has hitherto neglected. This essential learning is aided through visual and orthoptic training, guided by the physician's ability as a teacher in the technique of fusion and visual co-ordination.

Book Reviews

MANUAL OF THE DISEASES OF THE EYE. Charles H. May, M.D. Fourteenth Edition, Revised. Baltimore: William Wood and Company, 1934. 496 p. Ill.

In examining the fourteenth edition of this book, the reviewer remembers and repeats the encomiums which he has given to previous editions. This is the outstanding treatise on diseases of the eye, adapted for use by the student and general practitioner and, in addition, interesting to the ophthalmologist.

The first paragraph is in language that should be called again and again to the attention of the specialist:

"Ophthalmology is a branch of general medicine and surgery from which, in practice, it cannot be entirely separated. Examination of the eye does not mean merely the investigation of an isolated organ, but the examination of the *patient* with special reference to that organ and its functions."

The book contains in condensed form everything that is necessary for these three classes of readers—students, general practitioners and ophthalmologists—and is so exhaustive that it may be used as a work of reference in common with far larger treatises of one or a dozen volumes. The fact that it has been translated, with numerous editions, into Spanish, Italian, and even into three Chinese editions, indicates that it is appreciated by the profession and for many years, even after the lifetime of the author, will be the standard compendium of ophthalmology.

For this last edition, the book has been carefully revised, chapters rewritten, illustrations replaced, and brought thoroughly up to date. It is unnecessary in this review to give a digest of its contents. Suffice it to say that the fundamental facts of ophthalmology and space allotted to them are well balanced; rare conditions are merely mentioned and uncommon affections dismissed with a few lines. The commoner diseases, methods of treatment, and operations which the student must learn and which the general practitioner should know something about have been

described with comparative fullness. The illustrations are good, even those in colors; print and paper and format are also excellent.

The price of the book, only $4.00, should appeal to the pocket of the average practitioner.

HARRY VANDERBILT WÜRDEMANN, M.D.

SEEING AND HUMAN WELFARE. Matthew Luckiesh, Sc.D. Baltimore: The Williams and Wilkins Company, 1934. 193 p.

Directors of research laboratories are not commonly noted for powers of vivid expression either in the spoken or in the written word. Dr. Matthew Luckiesh is an exception to this generalization. Since 1915 he has written a series of books on lighting. Some have dealt with the technical aspects of the matter; in others he has sought to bring technical achievements in illumination to the notice of the public. His latest book, *Seeing and Human Welfare*, is a typical piece of propaganda. His theme is the folly, the costliness and the danger of working or allowing anyone to work in poor light; and the wisdom, the economy, and the safety of providing a superabundance of light. In a former book his enthusiasm for artificial lighting led him to suggest its superiority over the variable natural light for interior illumination. Here his text might be the splendor of sunlight and the poverty of our common conception of artificial light. The intensity of illumination at midday in summer has been nearly as high as 10,000 foot-candles; even in the shade of a tree it is about 1,000 foot-candles. Daylight indoors is restricted by windows, and its distribution is often unsatisfactory; there may be 200 foot-candles near the window, and only two foot-candles ten feet away. A 100-watt lamp may give a light equivalent to 100 candles at a distance of one foot, but the intensity of illumination ten feet from it is about the same as that of one candle at a distance of one foot—a wholly inadequate light for detailed work. Dr. Luckiesh discusses the visibility of objects and the illumination required for various types of work. In all categories he demands standards about twice as high as are commonly accepted; and his standards, he says, are not ideal.

Editorial, *British Medical Journal*

Contributors to This Issue

Dr. Edward Jackson is called the dean of American ophthalmology. He is a consulting editor of the *American Journal of Ophthalmology*, and professor emeritus of ophthalmology at the Colorado School of Medicine.

Mrs. Gladys Dunlop Matlock, supervisor of Braille and sight-saving classes in Detroit, Michigan, is a member of the Board of Editors of the SIGHT-SAVING REVIEW.

Among British ophthalmologists, **N. Bishop Harman** stands out as one of the most active in promoting the myope, or sight-saving, classes. In addition, he is the author of several books, and his articles appear frequently in British and American medical journals.

Mr. Lewis H. Carris, managing director of the National Society, needs no introduction to readers of the REVIEW.

Dr. Charles A. Bahn, ophthalmologist in New Orleans, is president of the Louisiana Society for the Prevention of Blindness.

Miss C. Edith Kerby is statistician on the staff of the National Society and a member of the Committee on Statistics of the Blind.

Our book reviewer: **Dr. Harry Vanderbilt Würdemann** is author of *Injuries of the Eye*, and a practicing ophthalmologist in Seattle, Washington.

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